26 August 2020

John Bystra, Project Manager
California Department of Toxic Substances Control
Site Mitigation and Restoration Program
8800 Cal Center Drive
Sacramento, California 95826

Subject: Gas Monitoring and Control System Restoration Completion Letter – Response to Additional Comments from DTSC
Genentech Building 48
645 East Grand Avenue
South San Francisco, California 94080
Langan Project No. 731677307

Dear Mr. Bystra:

On behalf of Genentech, Inc. (Genentech), Langan Engineering and Environmental Services (Langan) has prepared this response to comment (RTC) letter to respond to the additional comments provided by the California Department of Toxic Substances Control (DTSC) to the *Revised (Final) Gas Monitoring and Control System Restoration Completion Letter for Building 48* (Revised Final B48 Report), dated 22 June 2020. The comments were provided in a letter dated 4 August 2020. The Revised Final B48 Report dated 22 June 2020 was prepared in response to previous comments provided by DTSC on 2 June 2020 to the initial version of the B48 Report dated 20 April 2020. DTSC's 4 August 2020 letter acknowledges that the Revised Final B48 Report addresses the comments provided on 2 June 2020, but includes four additional comments for clarifying the Revised Final B48 Report, as detailed further below. Langan prepared the Revised Final B48 Report on behalf of Genentech to document Gas Monitoring and Control System (GMCS) restoration work at Building 48 (former Building 9) in accordance with the *Gas Monitoring and Control System Restoration Work Plan* (Work Plan) dated 23 July 2019.

The DTSC comments appear below followed by our responses. In addition to this RTC, Langan submits a redline version of its updated Revised Final B48 Report and an updated version of the Revised Final B48 Report with the changes implemented. If DTSC accepts the RTC without further comment, the intent is for the updated Revised Final B48 Report to be entered into the record without further action on behalf of Langan or Genentech.

Comment 1. In Response 3 of the RTCs and in the redline language in the Revised Redline B48 Report on page 3, the narrative states, "Per the DTSC-approved Work Plan…" The Work Plan being referenced is titled "Gas Monitoring and Control System Restoration Work Plan Genentech Building 48" and was submitted to DTSC on September 19, 2019. However, while DTSC did review the Work Plan, DTSC did

not approve it. The notification that this work was going to occur was approved by DTSC on September 3, 2019. Please revise the Final B48 Report in accordance with this.

Response 1. Reference to DTSC approval of the Work Plan has been removed from the Revised Final B48 Report.

Comment 2. In Attachment B within the Revised Redline B48 Report (and thus also the Final B48 Report (which are themselves described as Attachment B and Attachment C of the RTCs)), the term VMS is used multiple times, both in the Field Reports and on multiple Figure 1s. While this term likely translates to 'Vapor Mitigation System', it is not defined anywhere in the RTCs or the Revised Redline B48 Report (or thus the Final B48 Report). Please define the term the first time it is used, which appears to be on the Field Observation Daily Report, Field Report No. 1, Sheet 2 of 5.

Response 2. The term VMS has been updated to GMCS in the Revised Final B48 Report attachments.

Comment 3. In Attachment B of Attachments B and C to the RTCs, the Field Observation Daily Report, Field Report No. 1, Sheet 5 of 5 identifies the included Photograph as 'Photograph 3'. However, on the previous page, the photograph is labeled 'Photo 3'. Please change the label of 'Photograph 3' as appropriate.

Also, it appears that the label 'Photo' is used if the number of photographs is three or less within a Field Observation Daily Report, and 'Photograph' is used if the photographs number more than three (except in the case described above). Unless there is some significance to using different labels, the labeling should be the same for all photographs: use whichever term is preferred and apply it to all photographs in the appropriate attachments. Alternately, if there is a significant reason for labeling 'photos' and 'photographs' differently, please identify this reason in the appropriate portion of the reports.

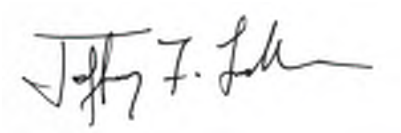
Response 3. All image labels have been updated to 'Photo' in the Revised Final B48 Report attachments.

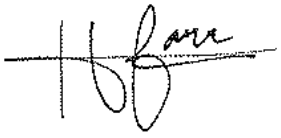
Comment 4. The revised text in the section titled Field Observations refers to demolition of equipment in the basement and also states that the media lab was installed on the ground floor. Multiple field daily reports also refer to a basement and appear to imply the work was performed in a basement. It is not clear if the media lab was installed in the basement of Building 48 or on the ground floor. The text should be reviewed and revised to remove any inconsistencies.

Response 4. There is not a basement at Building 48. All tenant improvement work took place on the ground floor. Text in the Revised Final B48 Report and attachments has been updated accordingly.

Closing. The relevant sections of the Revised Final B48 Report and attachments have been revised as noted above. The updated Revised Final B48 Report is provided for your review and approval. We trust this is sufficient for your present needs. Should you require additional information, please call us at 408-283-3600.

Sincerely yours,
Langan Engineering & Environmental Services, Inc.





Jeffrey F. Ludlow, PG
Principal/Vice President

Hayley Farr
Senior Staff Engineer

Attachments:

Attachment A: Revised (Redline) Gas Monitoring and Control System Restoration Completion Letter
Attachment B: Revised (Final) Gas Monitoring and Control System Restoration Completion Letter

731677306.08 JFL_RTC Letter_Gas Monitoring Control System Restoration Completion Letter_Genentech Bldg 48_FINAL_082620

ATTACHMENT A

REVISED (REDLINE) GAS MONITORING AND CONTROL SYSTEM RESTORATION COMPLETION LETTER

LANGAN

26~~22~~ ~~June~~ August 2020

Daniel Krasnow, Principal Project Manager
Genentech
1 DNA Way Mail Stop 36-1D
South San Francisco, California 94080

Subject: Revised (Final) Gas Monitoring and Control System Restoration Completion Letter
Genentech Building 48
645 East Grand Avenue
South San Francisco, California 94080
Langan Project No. 731677306

Dear Mr. Krasnow:

This letter summarizes Langan Engineering & Environmental Services, Inc. (Langan's) oversight of Gas Monitoring and Control System (GMCS) restoration work performed at Genentech, Building 48 (former Building 9) at 645 East Grand Avenue in South San Francisco, California (the site), between 25 November 2019 and 4 December 2019, and 14 and 27 February 2020. Restoration work to the GMCS was required following tenant improvements to construct a new media prep and glass wash facility on the ground floor of existing Genentech Building 48, which required cutting into concrete slab and breaching a portion of the GMCS geomembrane and vent piping. We observed the work on site to confirm the GMCS components affected by the work were correctly restored in accordance with the Gas Monitoring and Control System Restoration Work Plan (Work Plan) prepared by Langan dated 23 July 2019 for these tenant improvements.

Background

The site was formerly occupied by Fuller O'Brien paint manufacturing facility, which resulted in some historic hazardous material releases at the site. Several phases of environmental investigations and mitigation completed prior to the development of the site for its current use, resulted in the installation of a methane mitigation system for B48 (and the other site buildings) and various construction and operation agreements with Department of Toxic Substances Control (DTSC), and related land use covenants and deed restrictions for the site area.

Prior to construction, the site was divided into two development phases: Phase I Buildings (Buildings 41, 42, 43, 44, and Parking Structure A) constructed on the northern portion of the site; and Phase II Buildings (Genentech Buildings 45, 46, 47, 48, and Parking Structure B) constructed on the southern portion of the site. Results of soil gas sampling conducted prior to development of current site buildings indicated the presence of methane in the subsurface. The methane concentrations in soil gas beneath the Phase I Buildings were less than 0.5% by volume, while

the methane concentrations beneath the proposed southern Phase II Buildings (Building 4p8 and Parking Structure B) exceeded 5.0% by volume. To address the potential risks associated with methane in the subsurface, methane mitigation systems were designed and installed beneath all of the buildings at the site.

Beneath the northern Phase II Buildings (Buildings 45, 46, and 47), the methane mitigation measures consist of a passive gas extraction system installed beneath each building slab, with subsurface gas monitoring points to evaluate methane concentrations. The gas extraction system is attached to a wind-driven turbine atop each building, which provides a low-level vacuum to passively extract the collected gases from beneath the building foundation slab. The methane mitigation measures beneath the southern Phase II Buildings (Building 48 and Parking Structure B) consist of a passive gas extraction system beneath each building slab, with subsurface gas monitoring points to evaluate methane concentrations, as well as a continuous geomembrane gas barrier directly beneath the building slab underlying enclosed building areas. The GMCS (designed by Geosyntec) consists of a continuous geomembrane gas barrier consisting of 100-mil thick cold spray-applied geomembrane (Ecoline-S) installed on top of a non-woven heat bonded carrier geotextile (Ecoshield-E). The geomembrane is separated from the reinforced concrete structural slab by a cushion geotextile (Mirafi S 1200). A 2-inch diameter, Schedule 40, perforated and solid wall PVC pipes placed within 6-inch thick layer of aggregate lies beneath the geomembrane layer underlying the structural slab in plan locations as shown on Attachment A.

Field Observations

The GMCS restoration work was performed in two phases, Phase 1 and Phase 2. On 25 November 2019, 3 and 4 December 2019, Langan was on-site to observe and document that Phase 1 of the restoration work, which included the repair of a 2" solid pipe, a ½" solid pipe, and the geomembrane, which were breached following the demolition of the ~~basement~~ equipment and subsequent cutting of the concrete slab. As described in the Methane Mitigation Plan by Geosyntec dated 16 March 2006, the GMCS at Building 48 consists of (1) a continuous geomembrane 'sandwich' layer by EPRO, (2) gas extraction piping consisting of 2" diameter perforated and solid wall PVC pipes, and (3) gas monitoring probes consisting of individual ½" diameter PVC pipe (grey in color) running from three discrete monitoring probes (installed beneath the structural slab and the gas barrier) to external, surface mounted, traffic rated vaults.

Langan also observed Phase 2 of the restoration work during 14 and 27 February 2020, which included the repair of a 2" solid pipe, a ½" grey-colored solid gas monitoring pipe, and the geomembrane which were breached during the demolition of the steam condensate receiver. Additional repairs were made to the geomembrane in the men's bathroom where the slab was cut to repair a sewer line break. Langan observed trench excavation and subsequent breaching of the GMCS at the saw cut areas shown on Figure 1. Our Field Observation Reports are provided as Attachment B.

Prior to our observation, the concrete slab at each location was saw cut to a full depth to expose the underlying soil, aggregate, GMCS piping. The soil and aggregate removed during construction of the tenant improvements was stockpiled on site and used as backfill once installation of the piping and floor drains was complete. The trenches were backfilled and compacted to form a stable subgrade for the geomembrane installation and patching of the building slab.

Phase 2 of the subsurface work occurred following the GMCS restoration work completed on 4 December 2019. The concrete slab at each location (Field Daily dated 14 February 2020 in Attachment B) was saw cut to a full depth to expose the underlying soil and aggregate, resulting in the inadvertent cutting of a 2" PVC extraction pipe and a ½" grey-colored solid gas monitoring pipe. On 14 February 2020, Langan was on-site to inspect and document the pipes that were cut. On 27 February 2020 Langan was on-site to observe and document the repair to the cut pipes and the repair to the breached geomembrane layer.

The GMCS integrity of the piping that was affected by the B48 improvements during each phase of work was restored so that the piping system remains the preferential pathway for methane below the building slab to be vented outside of the building via the gas extraction riser. Langan observed that the GMCS vent piping was restored using materials of like size, type, and quality as the original GMCS piping, and in order to ensure integrity, the restored pipe sections were joined using only mechanical couplings, without the use of VOC containing solvents or glues.

Per the ~~DTSC-approved~~ Work Plan for this project, Langan observed that the geomembrane (Ecoline-S) was restored in accordance with the Work Plan and manufacturer's standard procedures with current underslab EPRO products: e.base 205, e.spray, and e.shield 205. Consistent with the manufacturer's quality assurance requirements, Langan observed a smoke test and coupon sampling in each of the trenches where the geomembrane work occurred following the restoration of the geomembrane. Each section of geomembrane was thoroughly smoke tested to ensure the proper installation. Each section tested passed the smoke test. In Langan's opinion, the GMCS restoration activities were performed in accordance with the Methane Mitigation System Repair Plan, dated 23 July 2019 and the GMCS has been restored satisfactorily to fully function as designed and continues to be protective of receptors. The GMCS restoration work was a planned activity and part of Genentech's tenant improvement work to construct a new media prep and glass wash facility on the ground floor of Genentech Building 48, and Langan certifies the proper completion of the work and operation of the GMCS. Accordingly, Langan does not believe that the conditions in the subsurface relative to the potential presence of methane have changed as a result of completing the Work Plan so as to re-initiate methane monitoring with the system per criteria established by DTSC when it suspended methane monitoring in March 2012.

If you have any questions, please do not hesitate to call.

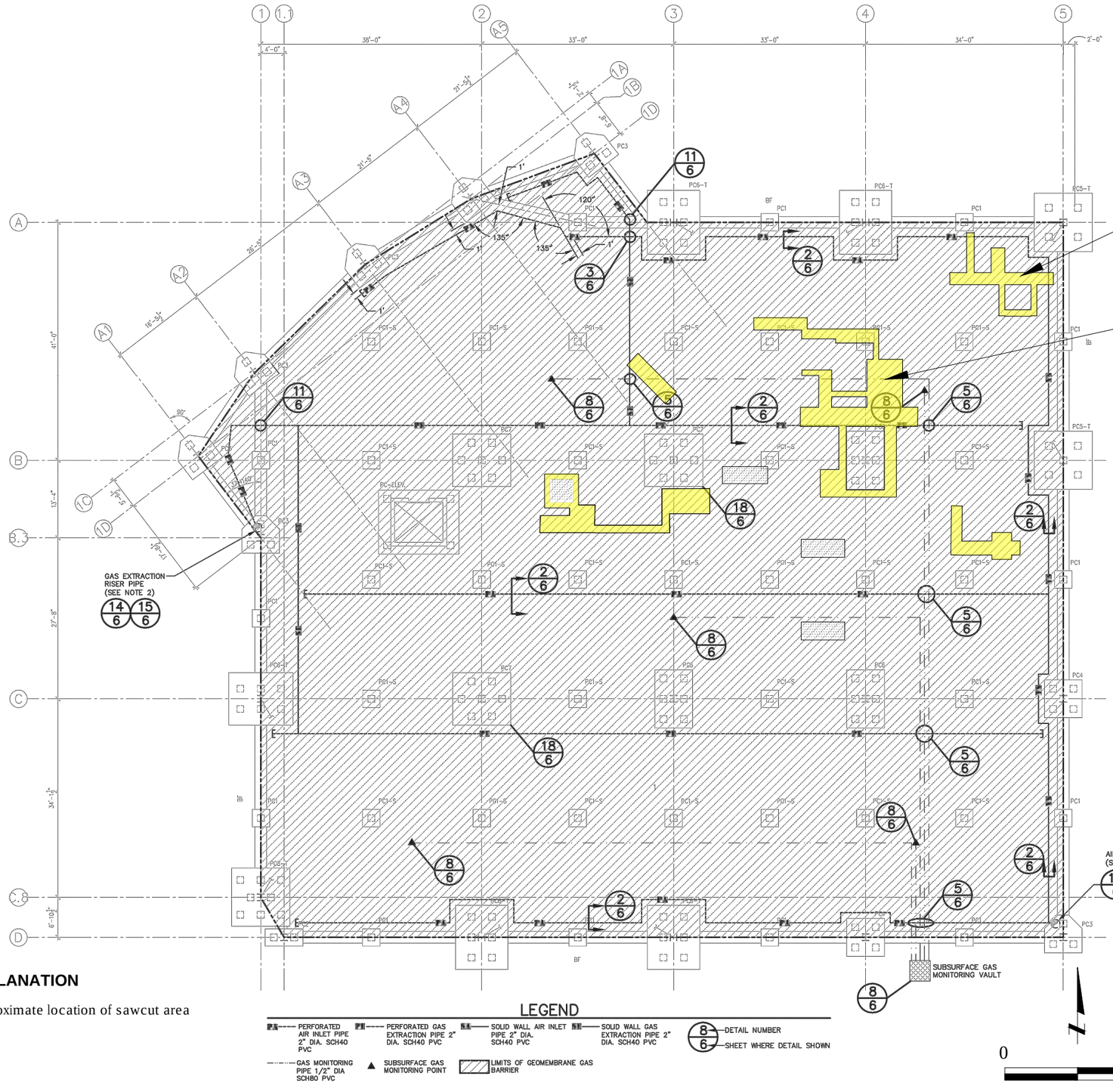
Sincerely yours,
Langan Engineering & Environmental Services, Inc.

Mukta Patil, PE
Senior Project Engineer

Jeffrey F. Ludlow, PG
Principal/Vice President

Attachments: Figure 1 – Gas Monitoring and Control System Restoration Site Plan
Figure 2 – Gas Monitoring and Control System Typical Geomembrane Restoration
Figure 3 – Gas Monitoring and Control System Typical Vent Pipe Restoration
Attachment A – GMCS Plan and Details prepared by Geosyntec
Attachment B – Field Observations and Reports

FIGURES



SEE FIGURE 2 FOR TYPICAL GMCS GEOMEMBRANE RESTORATION DETAIL

SEE FIGURE 3 FOR TYPICAL GMCS PIPE RESTORATION DETAIL

EXPLANATION

Approximate location of sawcut area

LEGEND

PA — PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC

PE — PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC

SA — SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC

SE — SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC

8/6 — DETAIL NUMBER / SHEET WHERE DETAIL SHOWN

GAS MONITORING PIPE 1/2" DIA SCH80 PVC

▲ SUBSURFACE GAS MONITORING POINT

LIMITS OF GEOMEMBRANE GAS BARRIER

0 25 Feet

Approximate scale

Reference: "Building 48 Structural Foundation Plan" provided by Flad Architects on 7/10/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

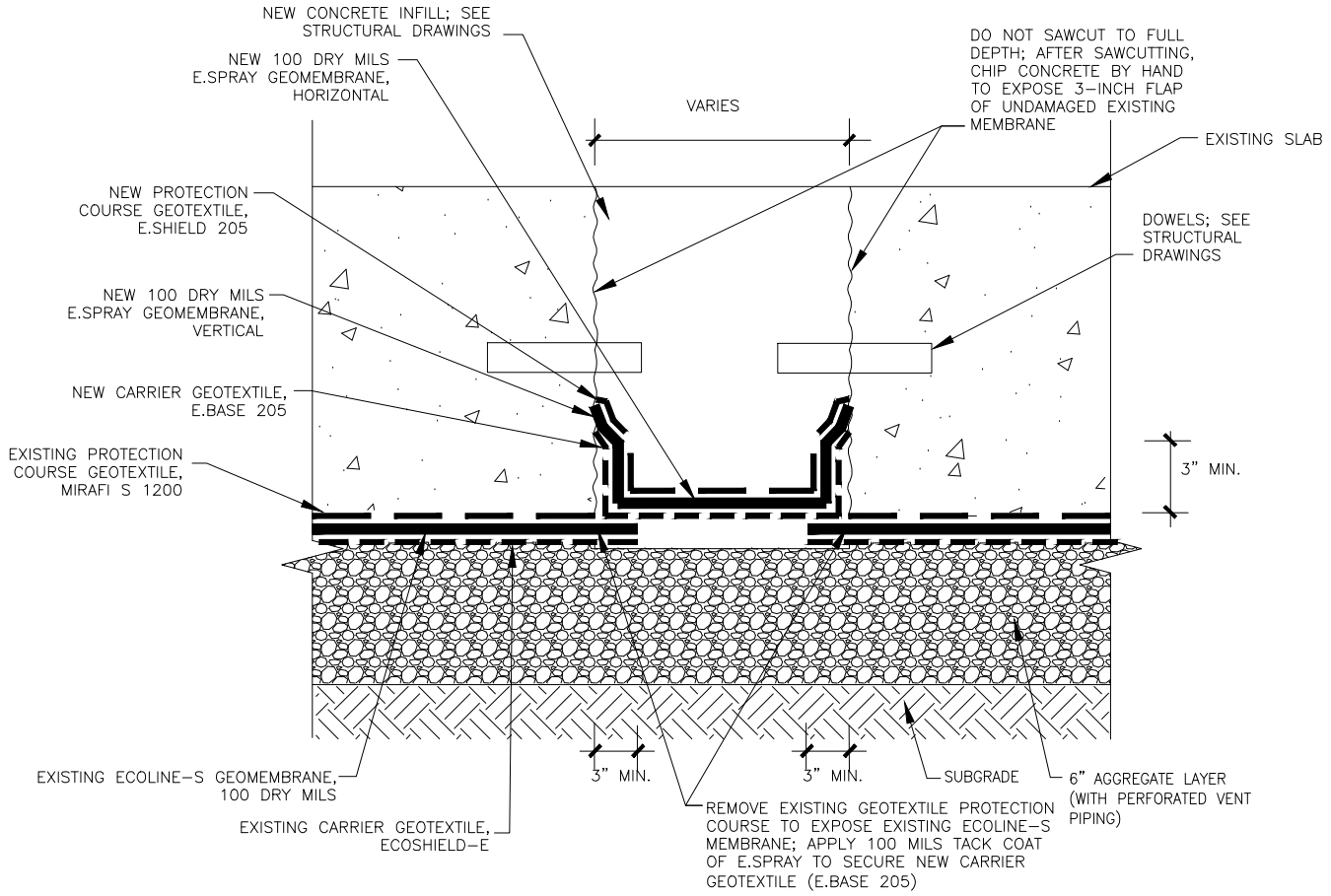
GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 07/15/19	Project No. 731677306	Figure 1

LANGAN

\\langan.com\data\SFO\data3\731677305\Project Data\CAD\05\2D-Design Files\731677306\731677306-N-SP0101.dwg 7/15/19



NOT TO SCALE

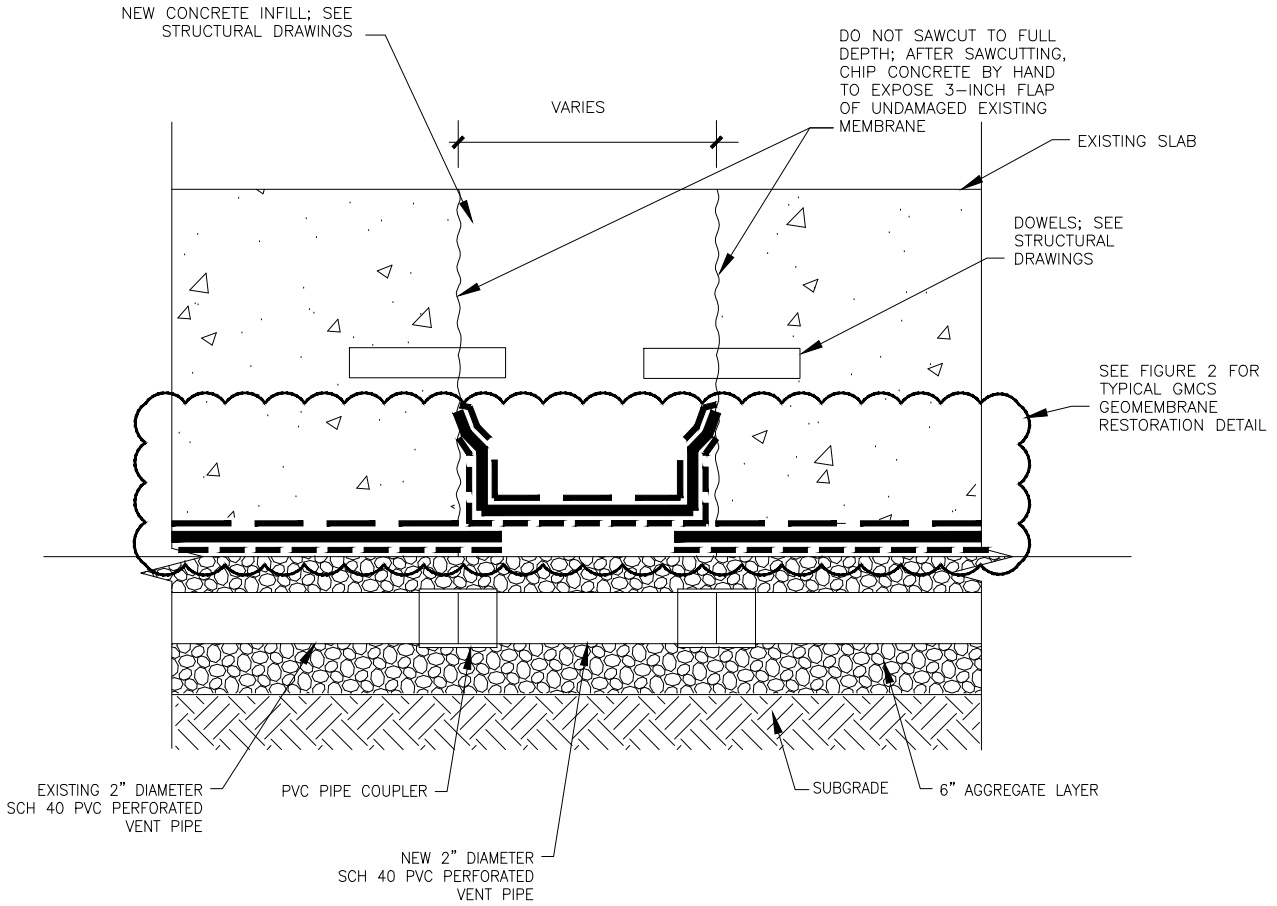
NOTE: THE EPRO PRODUCT E.SPRAY WAS FORMERLY KNOWN AS ECOLINE-S. THE GEOMEMBRANE SHALL BE RESTORED ACCORDING TO THE MANUFACTURER'S STANDARD PROCEDURES AND THE CURRENT UNDERSLAB EPRO PRODUCTS: E.BASE 205, E.SPRAY, AND E.SHIELD 205.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM
TYPICAL GEOMEMBRANE RESTORATION

Date 07/15/19	Project No. 731677306	Figure 2

LANGAN



NOT TO SCALE

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

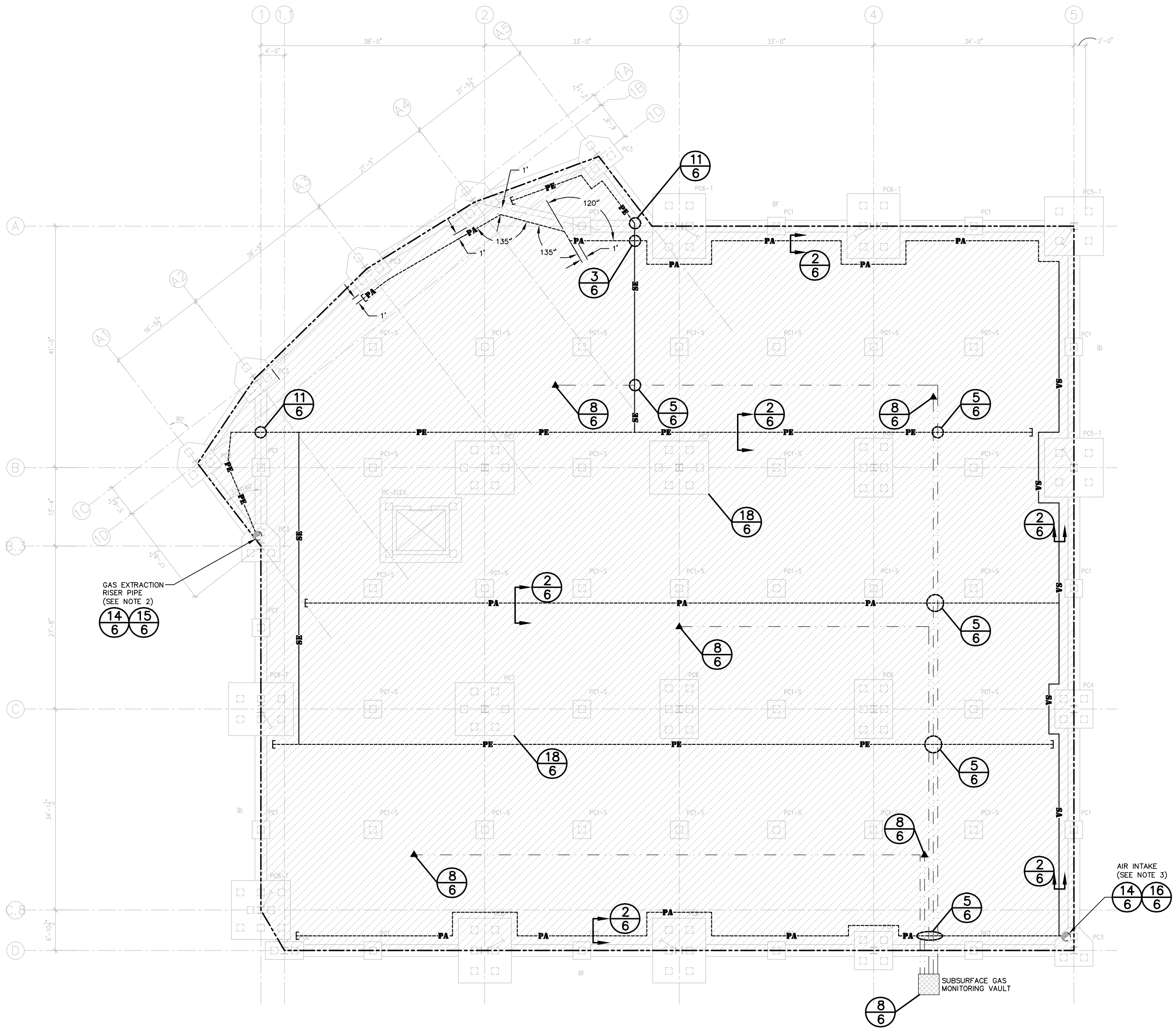
GAS MONITORING AND CONTROL SYSTEM
TYPICAL VENT PIPE RESTORATION

Date 07/15/19	Project No. 731677306	Figure 3

LANGAN

ATTACHMENT A

GMCS PLAN AND DETAILS PREPARED BY GEOSYNTEC

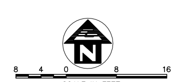


NOTES:

1. BUILDING FOUNDATION PLAN OBTAINED FROM DES ARCHITECTS & ENGINEERING.
2. GAS EXTRACTION VERTICAL RISER PIPE SHALL EXTEND A MINIMUM OF 2 FEET ABOVE ROOF LINE, CONTAIN A WIND DRIVEN ROTARY TURBINE VENTILATOR, AND BE PLACED A MINIMUM OF 10 FEET FROM HVAC INLETS OR BUILDING OPENINGS.
3. AIR INLET VERTICAL RISER SHALL BE INSTALLED A MINIMUM OF 10 FEET ABOVE GRADE OR HVAC INLETS AND OPENINGS.
4. UTILITIES WHICH PENETRATE THE BUILDING SLAB SHOULD BE CONSTRUCTED AS SHOWN ON DETAIL 19 SHEET 6. (19/6)
5. A SUBSURFACE TRENCH CUT OFF SHOULD BE CONSTRUCTED FOR UTILITIES ENTERING THE ENCLOSED PORTIONS OF THE BUILDING (I.E. AREAS WITH GEOMEMBRANE GAS BARRIER) AS SHOWN ON DETAIL 9 SHEET 6. (9/6)

LEGEND

- PA---- PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC
- PE---- PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
- SA—— SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC
- SE—— SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
- 8/6: 8 — DETAIL NUMBER; 6 — SHEET WHERE DETAIL SHOWN
- —·—·— GAS MONITORING PIPE 1/2" DIA SCH80 PVC
- ▲ SUBSURFACE GAS MONITORING POINT
- LIMITS OF GEOMEMBRANE GAS BARRIER



GEOSYNTEC CONSULTANTS
11305 Rancho Bernardo Rd. Suite 101
SAN DIEGO, CALIFORNIA 92127
TELEPHONE: (858) 674-6559

PROJECT: BRITANNIA EAST GRAND–PHASE II, SOUTH SAN FRANCISCO, CALIFORNIA

TITLE:

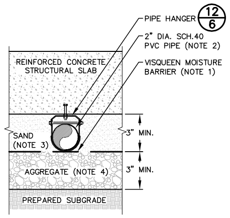
BUILDING 9
GAS MONITORING SYSTEM LAYOUT PLAN

MARK	DATE	REVISION	BY	APPROVED

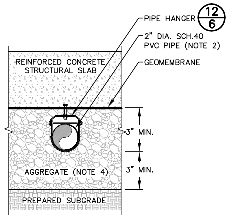
SEAL: REGISTERED PROFESSIONAL ENGINEER, STEVEN M. FITZWILLIAM, No.53231, Exp.6/30/07, CIVIL, STATE OF CALIFORNIA

SEAL

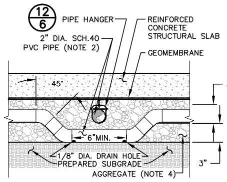
DATE: DECEMBER 2005	SCALE: AS SHOWN
DESIGN BY: S.F.	JOB NO.: SC0347-01
DRAWN BY: T.L.Z.	FILE NO:
CHECKED BY: G.T.C.	DOCUMENT NO:
REVIEWED BY: (PROJ. MGR.) G.T.C.	DRAWING NO:
APPROVED BY: (PRINCIPAL)	5 OF 6



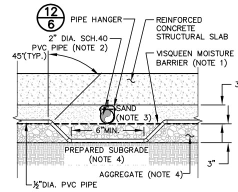
1/1-4 SECTION GAS EXTRACTION SYSTEM N.T.S.



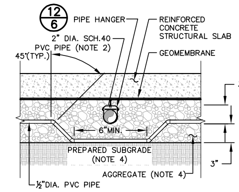
2/1,5 SECTION GAS EXTRACTION SYSTEM N.T.S.



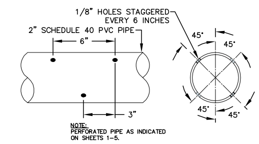
3/1,5 SECTION PVC PIPE CROSSING N.T.S.



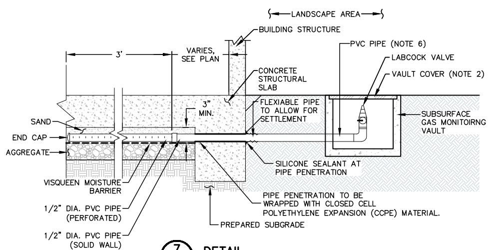
4/2-4 SECTION GAS EXTRACTION SYSTEM N.T.S.



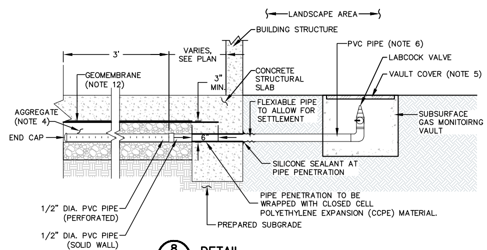
5/1,5 SECTION GAS EXTRACTION SYSTEM N.T.S.



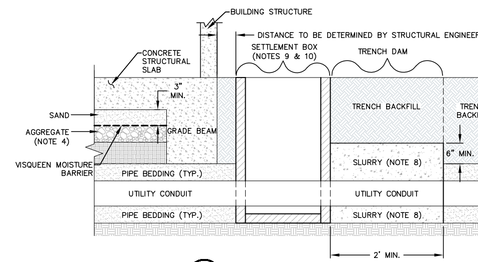
6/6 SECTION PERFORATED PVC PIPE N.T.S.



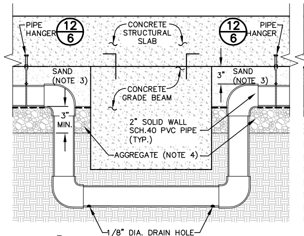
7/2-4 DETAIL METHANE MONITORING PROBE N.T.S.



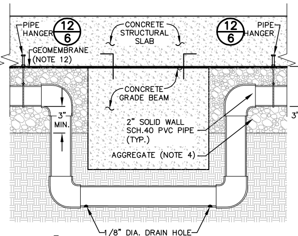
8/1,5 DETAIL METHANE MONITORING PROBE N.T.S.



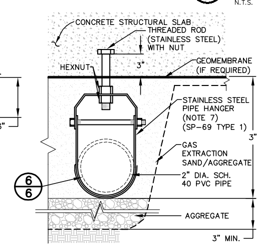
9/1-5 DETAIL SUBSURFACE TRENCH CUT OFF N.T.S.



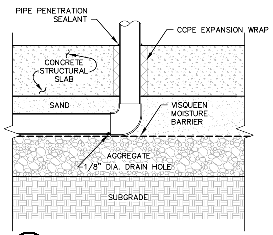
10/2-4 SECTION PIPE CROSSING AT GRADE BEAM N.T.S.



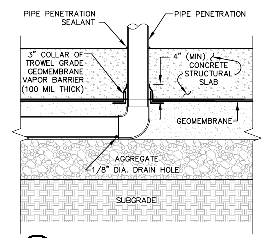
11/1,5 SECTION PIPE CROSSING AT GRADE BEAM N.T.S.



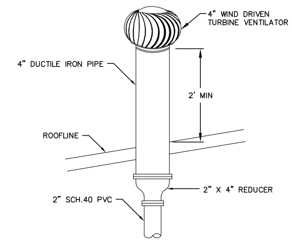
12/6 DETAIL PIPE HANGER N.T.S.



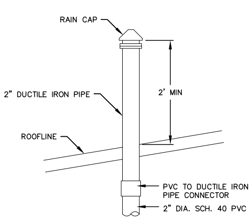
13/1-4 DETAIL PIPE PENETRATION N.T.S.



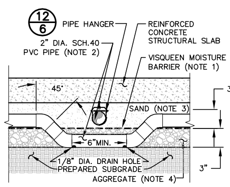
14/5 DETAIL GEMEMBRANE PENETRATION N.T.S.



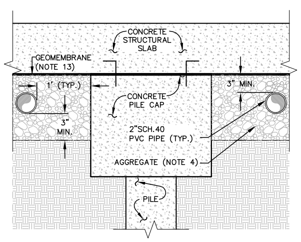
15/1-5 DETAIL GAS VENT N.T.S.



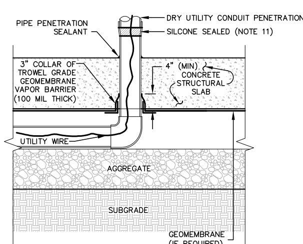
16/1-5 DETAIL AIR INLET N.T.S.



17/2,3 SECTION PVC PIPE CROSSING N.T.S.



18/1,5 SECTION GEOMEMBRANE CROSSING PILE CAP N.T.S.



19/1-5 DETAIL DRY UTILITY SLAB PENETRATION N.T.S.

NOTES:

1. MOISTURE BARRIER TO BE INSTALLED FOR CONCRETE CURING PURPOSES IN ACCORDANCE WITH STRUCTURAL ENGINEERING DESIGN.
2. PIPE HANGERS MAY BE REQUIRED IF GEOTECHNICAL ENGINEER ANTICIPATES SETTLEMENT OF SOIL BENEATH STRUCTURAL SLAB.
3. SAND SHALL MEET THE REQUIREMENTS FOR PORTLAND CEMENT CONCRETE (SSPWC 200–1.5.5), OR MEDIUM OR FINE SCREENINGS (SSPWC 200–1.2.1)
4. AGGREGATE SHALL MEET REQUIREMENTS SPECIFIED IN ASTM C33 FOR #8 AGGREGATE UNLESS OTHERWISE NOTED IN THE GEOTECHNICAL INVESTIGATION REPORT FOR THE PROJECT.
5. VAULT SHALL HAVE A WATER–TIGHT, TRAFFIC RATED COVER.
6. PVC PIPE AND FITTINGS SHALL BE JOINED BY THREADED CONNECTIONS AND/OR STAINLESS STEEL, SELF– TAPPING SCREWS WITHIN THE GAS MONITORING VAULT. NO SOLVENTS WILL BE ALLOWED.
7. PIPE HANGER SPACING, 8 FEET ALONG SOLID WALL PIPE AND 10 FEET ALONG PERFORATED PIPE.
8. SLURRY SHALL CONSIST OF 2–SACK CEMENT SLURRY WITH 2 PERCENT BENTONITE.
9. SETTLEMENT BOX PER STRUCTURAL ENGINEER'S RECOMMENDATION.
10. IF NO SETTLEMENT BOX IS REQUIRED PER STRUCTURAL ENGINEER'S RECOMMENDATIONS, THEN TRENCH DAM WILL ABUT BUILDING GRADE BEAM.
11. DRY UTILITIES PENETRATING THE STRUCTURAL SLAB SHALL HAVE THE ANNULUS OF THE CONDUIT SEALED USING 1" THICK DOW SILICONE SEALANT. SEALANT LOCATION TO BE AT FIRST CONDUIT JOINT WITHIN STRUCTURE.
12. GEOMEMBRANE SHALL EXTEND A MINIMUM OF 6 INCHES ONTO PERIMETER GRADE BEAMS AT LIMIT OF GEOMEMBRANE.
13. GEOMEMBRANE SHALL EXTEND TO LIMITS SHOWN ON SHEETS 1 AND 5 AT PILE CAPS ALONG LIMIT OF GEOMEMBRANE.

12/6 — DETAIL NUMBER / SHEET(S) WHERE DETAIL APPLIES

GEOSYNTEC CONSULTANTS
10875 Rancho Bernardo Rd. Suite 200
SAN DIEGO, CALIFORNIA 92127
TELEPHONE: (858) 674-6559

PROJECT: BRITANNIA EAST GRAND–PHASE II
SOUTH SAN FRANCISCO, CALIFORNIA

TITLE: GAS EXTRACTION SYSTEM DETAILS

MARK	DATE	REVISION	BY	APPROVED

REGISTERED PROFESSIONAL ENGINEER STEVEN M. FITZWILLIAM No.53231 Exp.6/30/07 CIVIL STATE OF CALIFORNIA
SEAL
SEAL

DATE:	DECEMBER 2005	SCALE:	AS SHOWN
DESIGN BY:	S.F.	JOB NO.:	SC0347–01
DRAWN BY:	T.L.Z.	FILE NO:	
CHECKED BY:	G.T.C.	DOCUMENT NO:	
REVIEWED BY: (PROJ. MGR.)	G.T.C.	DRAWING NO:	6 OF 6
APPROVED BY: (PRINCIPAL)			

ATTACHMENT B

FIELD OBSERVATIONS AND REPORTS

LANGAN

FIELD REPORT NO. 1

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	11/25/2019
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	1400 – 1500 (plus reporting)	Weather:	Overcast, ~50°F
Reviewed by:	*Mukta Patil*	Date:	12/05/2019

1400 Daniel Wood (Langan) arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for Gas Monitoring and Control System (GMCS) restoration oversight.

1410 Daniel Wood (Langan) meets Jesse (ACT, membrane restoration subcontractor) who is spraying EPRO vapor barrier in the trench closest to the loading dock entrance. Smoke testing will commence after the repair.

1420 Initial restoration complete. Coupon cut and collected. Smoke testing underway.

1440 Coupon thickness 110 mil. Smoke testing passed.

1500 Daniel Wood (Langan) departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 11/25/2019

Photo 1: North Tower GMCS~~VMS~~ repair work underway near loading dock door (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 11/25/2019

Photo 2: Progress of patching shown in Photo 1 (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

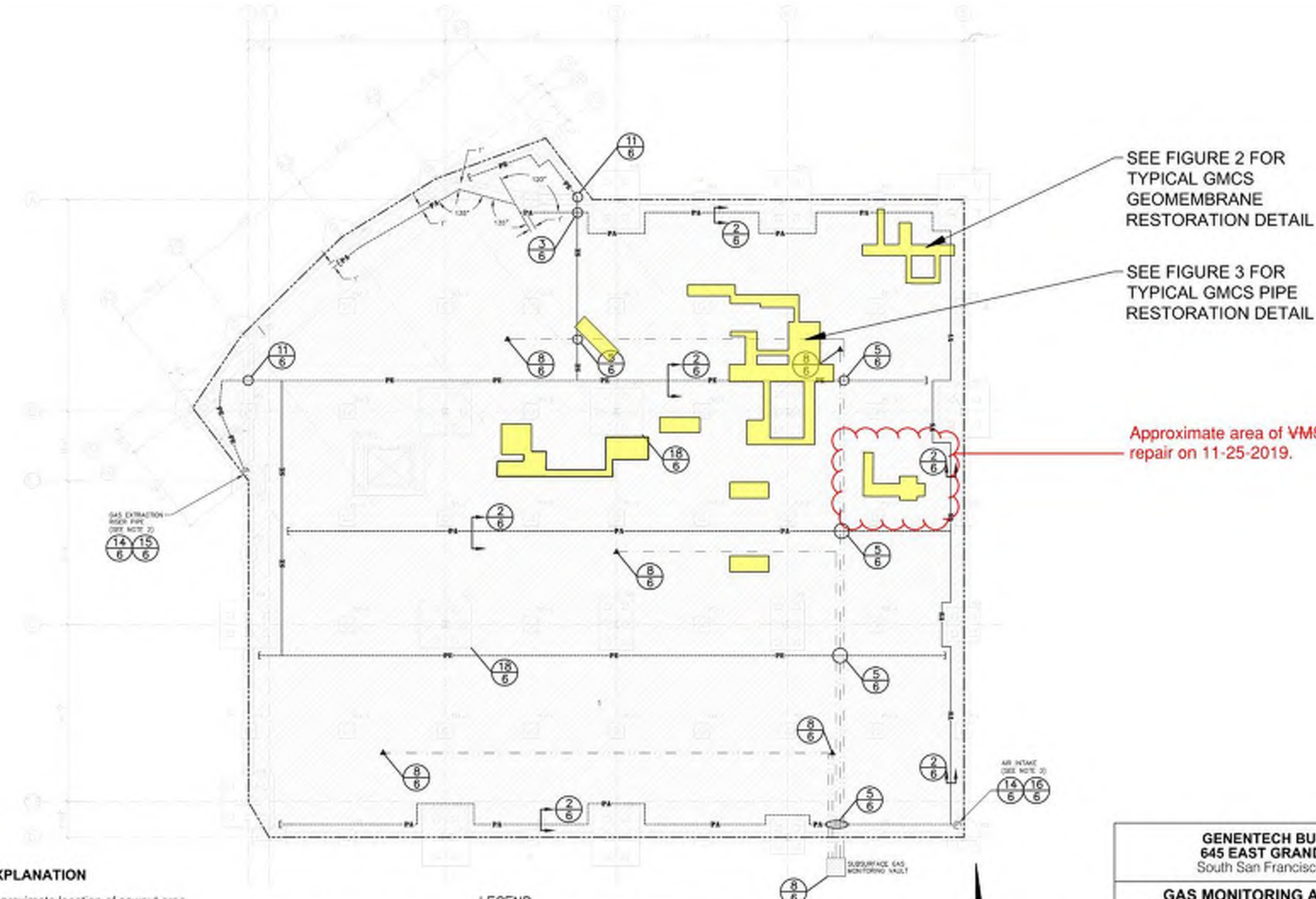
Project No: 731677306
Date: 11/25/2019

Photo 3: Progress of patching shown in Photo 1 (facing northeast).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 11/25/2019

Photo~~graph~~ ~~43~~: Repair of area cut for smoke testing (facing north).



EXPLANATION

Approximate location of sawcut area

LEGEND

PA — PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC
PE — PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
SA — SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC
SE — SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
8/6 — DETAIL NUMBER / SHEET WHERE DETAIL SHOWN
GAS MONITORING PIPE 1/2" DIA SCH80 PVC
▲ SUBSURFACE GAS MONITORING POINT
LIMITS OF GEOMEMBRANE GAS BARRIER

0 25 Feet
Approximate scale

Reference: "Building 48 Structural Foundation Plan" provided by Flad Architects on 7/10/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 07/15/19	Project No. 731677306	Figure 1

LANGAN

LANGAN

FIELD REPORT NO. 2

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	12/03/2019
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	0700 – 0800 & 1000 - 1015 (plus reporting)	Weather:	Overcast, ~50°F
Reviewed by:	*Mukta Patil*	Date:	12/05/2019

0700 Daniel Wood (Langan) arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for Gas Monitoring and Control System (GMCS) restoration oversight.

0705 Call Anthony Garcia (GCI) in order to meet.

0740 Observation of vapor barrier restoration work progress along with Anthony Garcia (GCI) and Frank. The 2" solid gas extraction pipe is repaired. The ½" solid gas monitoring pipe is not yet repaired. Daniel Wood to return at 10am.

0800 Daniel Wood departs the site.

1000 Daniel Wood returns to B48 to inspect ½" solid gas monitoring pipe repair. Pipe is repaired. EPRO vapor barrier membrane application to begin tomorrow (12-04-2019)

1015 Daniel Wood departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/03/2019

Photo 1: Preparation for EPRO application to north western most repair section (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/03/2019

Photo 2: Preparation for EPRO application on north eastern-most repair section (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

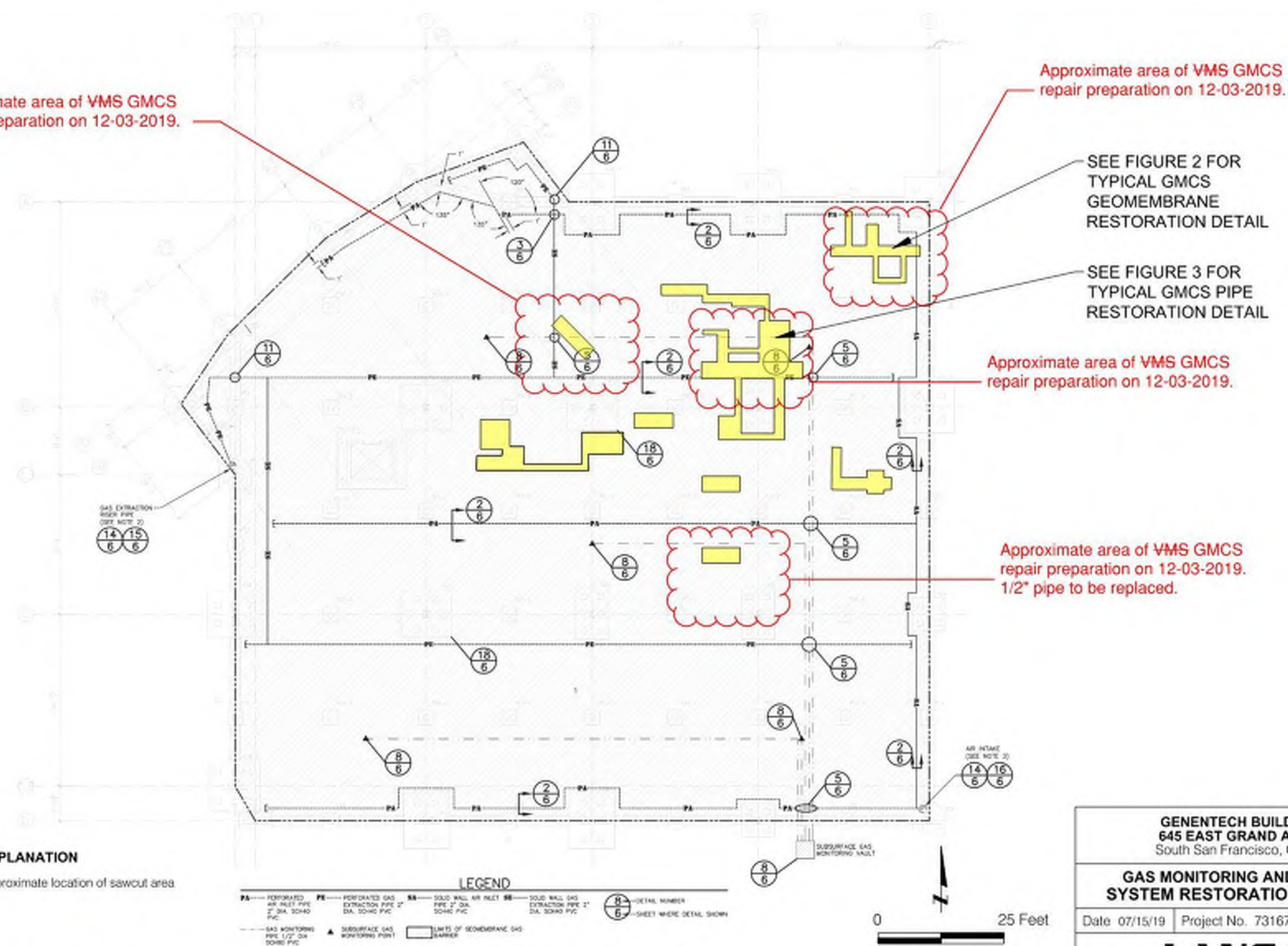
Project No: 731677306
Date: 12/03/2019

Photo 3: Progress of ½" solid gas monitoring pipe replacement (facing south).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/03/2019

Photo~~graph~~ 4: Preparation for GMCS repair to center trenching area (facing north).



EXPLANATION

Approximate location of sawcut area

LEGEND

- PA — PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC
- PE — PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
- SA — SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC
- SE — SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
- GAS MONITORING PIPE 1/2" DIA SCH80 PVC
- ▲ SUBSURFACE GAS MONITORING POINT
- LIMITS OF GEOMEMBRANE GAS BARRIER
- DETAIL NUMBER / SHEET WHERE DETAIL SHOWN

Reference: "Building 48 Structural Foundation Plan" provided by Flad Architects on 7/10/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 07/15/19	Project No. 731677306	Figure 1

LANGAN

LANGAN

FIELD REPORT NO. 3

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	12/04/2019
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	1605 – 1740 (plus reporting)	Weather:	Overcast, ~50°F
Reviewed by:	*Mukta Patil*	Date:	12/05/2019

1605 Daniel Wood (Langan) arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for Gas Monitoring and Control System (GMCS) restoration oversight.

1615 Smoke testing commences. Coupons collected.

1730 Smoke testing passed in each trench. Coupon thicknesses in four areas checked: 105 mil, 110 mils, 120 mils, and 105 mils.

1740 Daniel Wood departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/04/2019

Photo 1: Post vapor barrier application to north western most repair section (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/04/2019

Photo 2: EPRO applied to eastern-most section of GMCS repair (facing east).

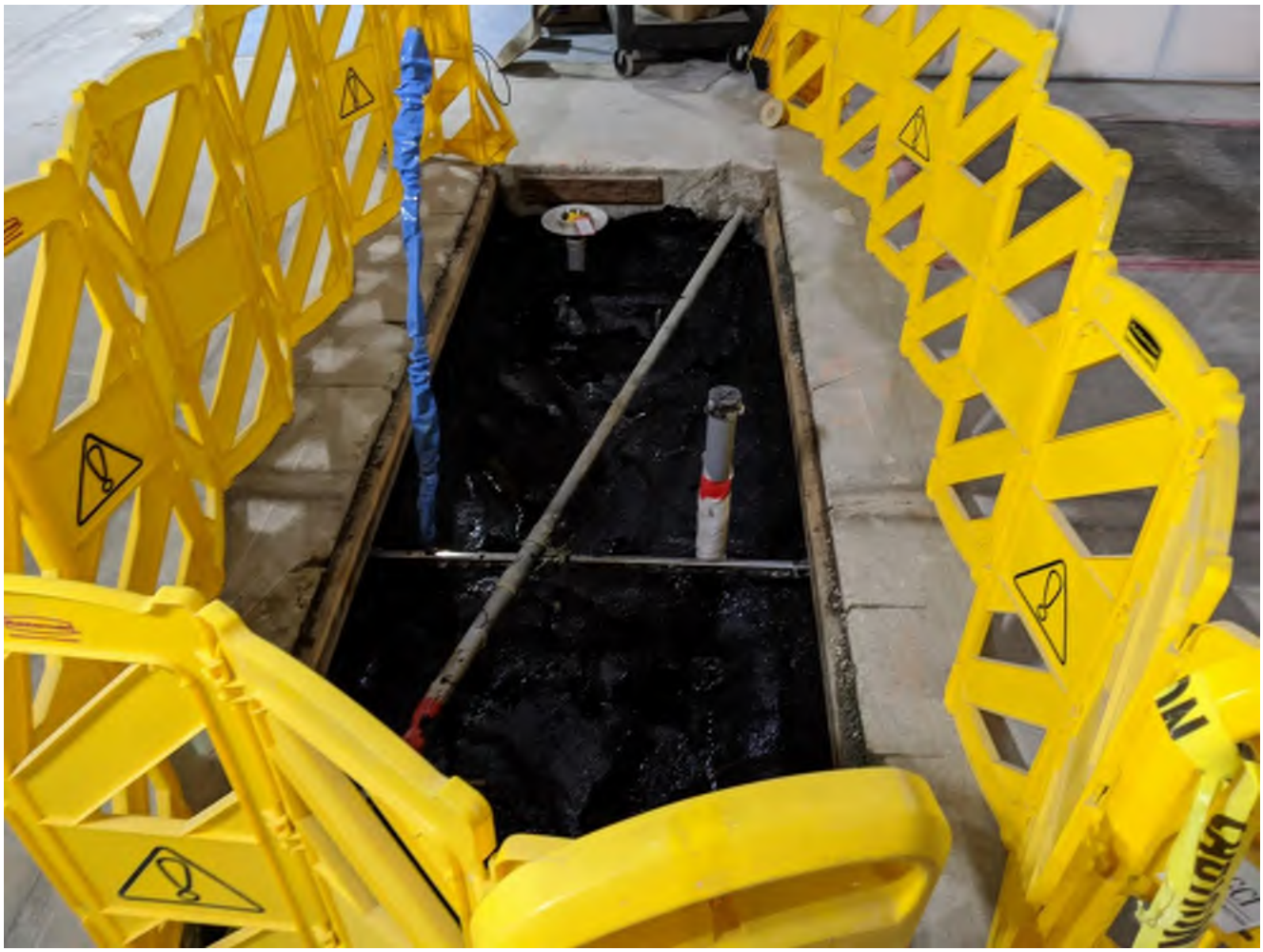
Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/04/2019

Photo 3: EPRO applied to center-most section of GMCS repair area (facing south).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/04/2019



Photo~~graph~~ 4: EPRO applied to GMCS repair where ½" gas monitoring pipe was replaced (facing west).

Approximate area of ~~VMS~~ GMCS repair on 12-04-2019.

Approximate area of ~~VMS~~ GMCS repair on 12-04-2019.

SEE FIGURE 2 FOR TYPICAL GMCS GEOMEMBRANE RESTORATION DETAIL

SEE FIGURE 3 FOR TYPICAL GMCS PIPE RESTORATION DETAIL

Approximate area of ~~VMS~~ GMCS repair on 12-04-2019.

Approximate area of ~~VMS~~ GMCS repair on 12-04-2019. 1/2" gas monitoring pipe replaced in southern trench.

GAS EXTRACTION RISER PIPE (SEE NOTE 2)

AIR INTAKE (SEE NOTE 2)

SUBSURFACE GAS MONITORING VAULT

EXPLANATION

Approximate location of sawcut area

LEGEND

PA — PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC

PE — PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC

SA — SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC

SE — SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC

8/6 — DETAIL NUMBER / SHEET WHERE DETAIL SHOWN

GAS MONITORING PIPE 1/2" DIA SCH80 PVC

SUBSURFACE GAS MONITORING POINT

LIMITS OF GEOMEMBRANE GAS BARRIER

0 25 Feet

Approximate scale

Reference: "Building 48 Structural Foundation Plan" provided by Flad Architects on 7/10/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 07/15/19	Project No. 731677306	Figure 1

LANGAN

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LANGAN

FIELD REPORT NO. 4

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	2/14/2020
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	1000 – 1100 (plus reporting)	Weather:	Overcast, ~60°F
Reviewed by:	*Mukta Patil*	Date:	03/27/2020

1030 Daniel Wood arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for observation of Phase 2 part of the Gas Monitoring and Control System (GMCS) restoration work.

1030 Daniel Wood observes concrete cut during Phase 2 Saw Cutting. Location of cutting is ~~in middle of basement,~~ adjacent to loading dock entrance. White 2" PVC gas extraction pipe cut during saw cutting to be repaired the following week prior to GMCS repair.

1100 Daniel Wood departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/14/2020

Photo 1: Wide view of Saw Cutting Phase 2 area from the loading dock entrance (facing north).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/14/2020

Photo 2: View of Saw Cutting Phase 2 and cut 2" PVC gas extraction pipe (facing north).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

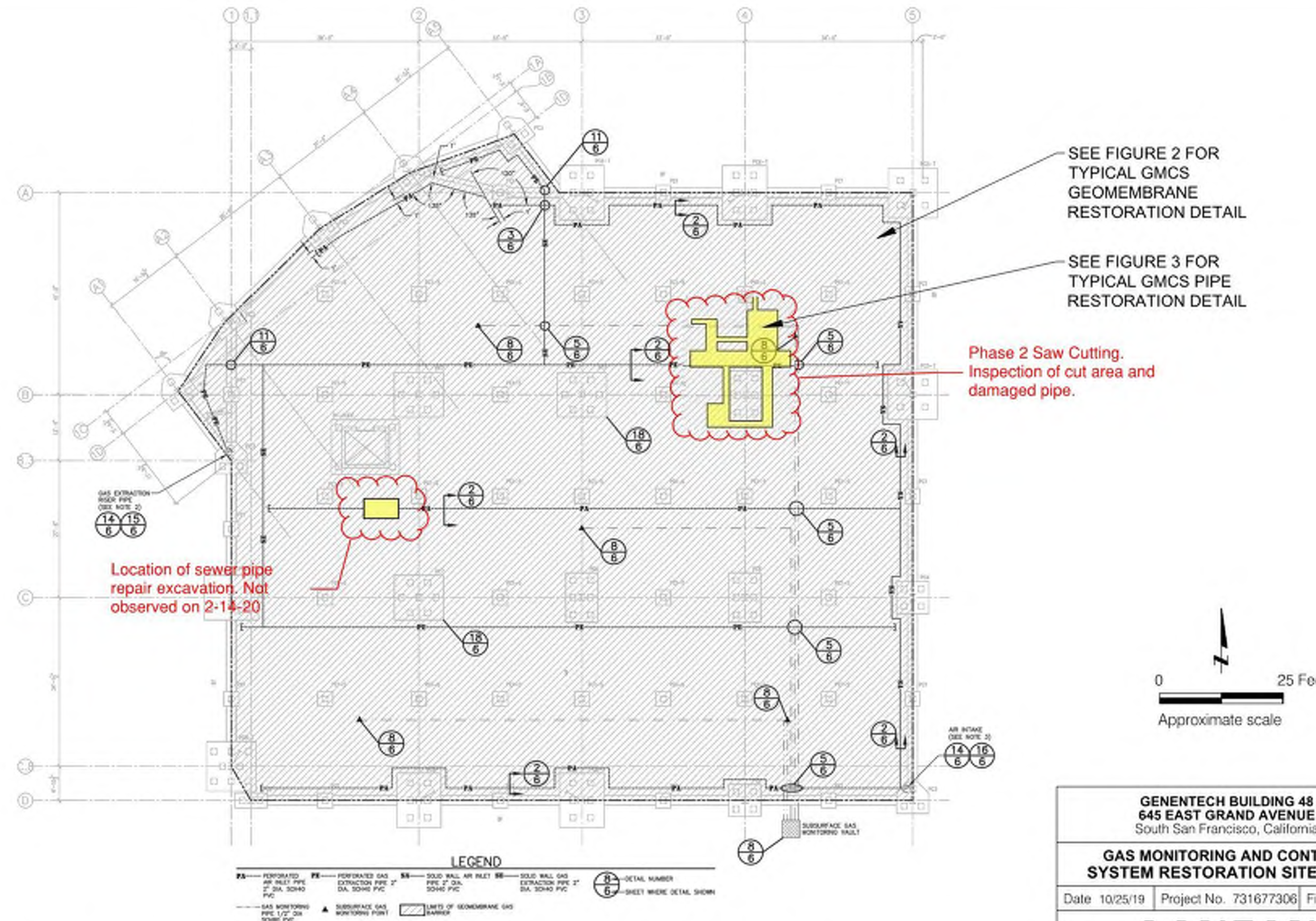
Project No: 731677306
Date: 2/14/2020

Photo 3: View of 2" PVC gas extraction pipe cut during Phase 2 Saw Cutting (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/14/2020

Photo~~graph~~ 4: View of Phase 2 Saw Cutting area and cut 2" PVC gas extraction pipe (facing west).



Reference: "148-S02-028 PARTIAL FOUNDATION PLAN" provided by GCI on 10/24/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 10/25/19	Project No. 731677306	Figure 1

LANGAN

LANGAN

FIELD REPORT NO. 5

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	2/27/2020
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	1315 – 2035 (off site from 1400 – 1630)	Weather:	~60°F
Reviewed by:	*Mukta Patil*	Date:	03/27/2020

1315 Daniel Wood (Langan) arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for Gas Monitoring and Control System (GMCS) restoration oversight.

Work Overview: During Phase 2 excavation within ~~the basement of~~ B48, a 2" PVC gas extraction line and a ½" solid gas monitoring pipe were cut and required repair. Following the repair of the cut pipes, the GMCS will be restored to the original condition. Langan on site to observe and document repaired pipes and observe smoke testing of the repaired membrane. Additionally, a small excavation in the men's bathroom to repair a failed sewer line will also require GMCS repair and subsequent smoke testing.

1340 Pipe repairs complete. The pipes were repaired to manufacturer specifications.

1400 Daniel Wood departs site while ACT prepares for GMCS repair.

1630 Daniel Wood returns to site. ACT is having a number of equipment issues. Primarily due to clogging of their equipment lines. Work progresses slowly.

1900 ACT finishes with patching of Phase 2 excavation area ~~in basement~~.
1910 Repair of GMCS cut in bathroom excavation begins.

1930 Smoke testing of GMCS patching in bathroom begins. Progress is slow due to clogging of vapor barrier equipment lines.

1955 Smoke testing of bathroom patching passed. Coupon thickness: 105 mils

2000 Smoke testing to begin on main Phase 2 excavation area ~~within the basement~~.

2030 Smoke testing of main excavation area passed. Coupon thickness: 120 mils

2035 Daniel Wood departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 1: Phase 2 excavation area within ~~basement of~~ B48 (facing north).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 2: Fully repaired 2” PVC gas extraction pipe (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 3: Fully repaired ½" solid gas monitoring pipe (facing north).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo~~graph~~ 4: View of small excavation area within men's bathroom (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo~~graph~~ 5: View of GMCS repair over 2" PVC gas extraction pipe (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

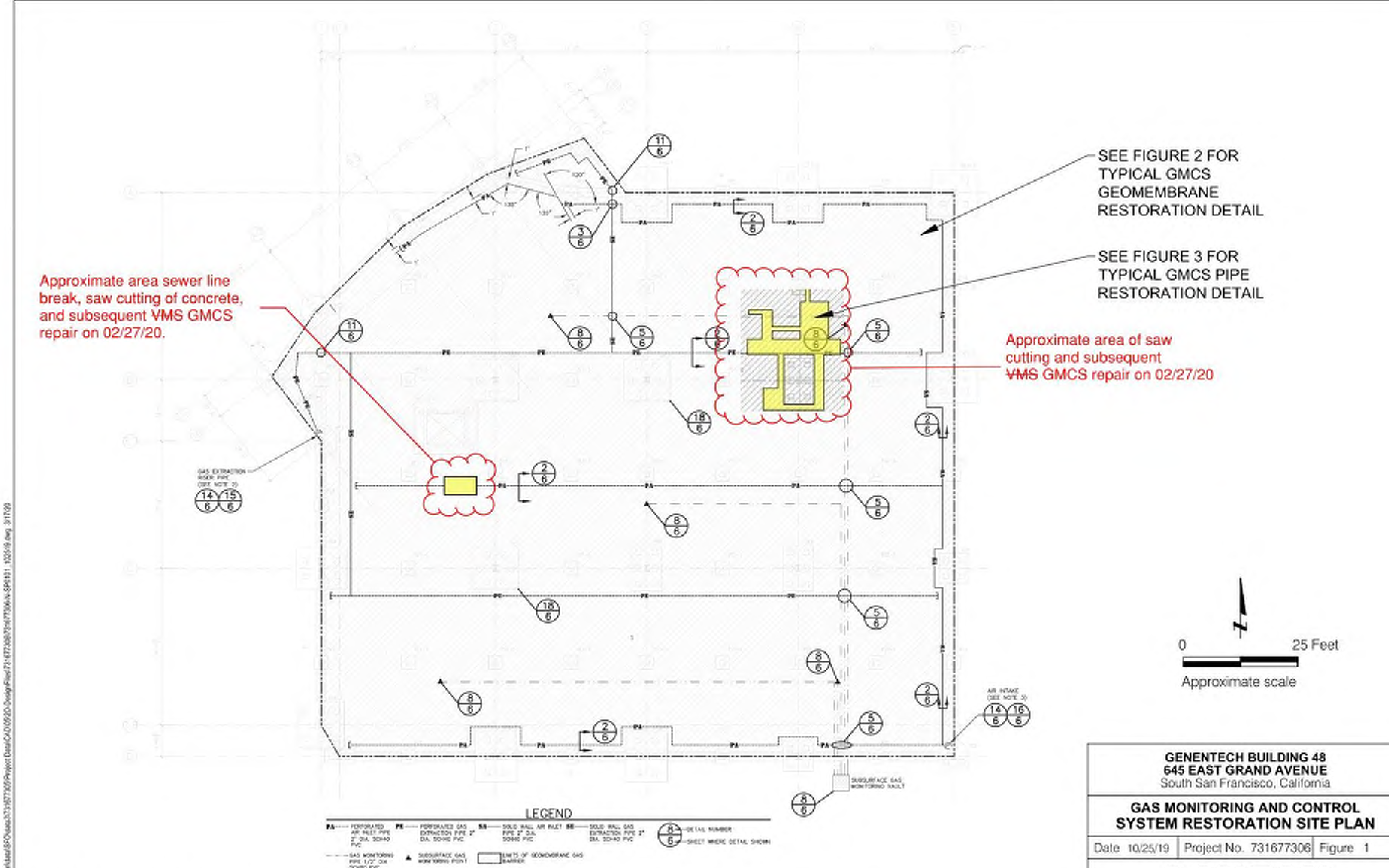
Project No: 731677306
Date: 2/27/2020

Photo~~graph~~ 6: View of complete Phase 2 excavation GMCS repair (facing northwest).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo~~graph~~ 7: View of complete GMCS repair within men's bathroom (facing west)



Reference: "148-S02-028 PARTIAL FOUNDATION PLAN" provided by GCI on 10/24/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 10/25/19	Project No. 731677306	Figure 1

LANGAN

ATTACHMENT B

REVISED (FINAL) GAS MONITORING AND CONTROL SYSTEM RESTORATION COMPLETION LETTER

LANGAN

26 August 2020

Daniel Krasnow, Principal Project Manager
Genentech
1 DNA Way Mail Stop 36-1D
South San Francisco, California 94080

Subject: Revised (Final) Gas Monitoring and Control System Restoration Completion Letter
Genentech Building 48
645 East Grand Avenue
South San Francisco, California 94080
Langan Project No. 731677306

Dear Mr. Krasnow:

This letter summarizes Langan Engineering & Environmental Services, Inc. (Langan's) oversight of Gas Monitoring and Control System (GMCS) restoration work performed at Genentech, Building 48 (former Building 9) at 645 East Grand Avenue in South San Francisco, California (the site), between 25 November 2019 and 4 December 2019, and 14 and 27 February 2020. Restoration work to the GMCS was required following tenant improvements to construct a new media prep and glass wash facility on the ground floor of existing Genentech Building 48, which required cutting into concrete slab and breaching a portion of the GMCS geomembrane and vent piping. We observed the work on site to confirm the GMCS components affected by the work were correctly restored in accordance with the Gas Monitoring and Control System Restoration Work Plan (Work Plan) prepared by Langan dated 23 July 2019 for these tenant improvements.

Background

The site was formerly occupied by Fuller O'Brien paint manufacturing facility, which resulted in some historic hazardous material releases at the site. Several phases of environmental investigations and mitigation completed prior to the development of the site for its current use, resulted in the installation of a methane mitigation system for B48 (and the other site buildings) and various construction and operation agreements with Department of Toxic Substances Control (DTSC), and related land use covenants and deed restrictions for the site area.

Prior to construction, the site was divided into two development phases: Phase I Buildings (Buildings 41, 42, 43, 44, and Parking Structure A) constructed on the northern portion of the site; and Phase II Buildings (Genentech Buildings 45, 46, 47, 48, and Parking Structure B) constructed on the southern portion of the site. Results of soil gas sampling conducted prior to development of current site buildings indicated the presence of methane in the subsurface. The methane concentrations in soil gas beneath the Phase I Buildings were less than 0.5% by volume, while

the methane concentrations beneath the proposed southern Phase II Buildings (Building 48 and Parking Structure B) exceeded 5.0% by volume. To address the potential risks associated with methane in the subsurface, methane mitigation systems were designed and installed beneath all of the buildings at the site.

Beneath the northern Phase II Buildings (Buildings 45, 46, and 47), the methane mitigation measures consist of a passive gas extraction system installed beneath each building slab, with subsurface gas monitoring points to evaluate methane concentrations. The gas extraction system is attached to a wind-driven turbine atop each building, which provides a low-level vacuum to passively extract the collected gases from beneath the building foundation slab. The methane mitigation measures beneath the southern Phase II Buildings (Building 48 and Parking Structure B) consist of a passive gas extraction system beneath each building slab, with subsurface gas monitoring points to evaluate methane concentrations, as well as a continuous geomembrane gas barrier directly beneath the building slab underlying enclosed building areas. The GMCS (designed by Geosyntec) consists of a continuous geomembrane gas barrier consisting of 100-mil thick cold spray-applied geomembrane (Ecoline-S) installed on top of a non-woven heat bonded carrier geotextile (Ecoshield-E). The geomembrane is separated from the reinforced concrete structural slab by a cushion geotextile (Mirafi S 1200). A 2-inch diameter, Schedule 40, perforated and solid wall PVC pipes placed within 6-inch thick layer of aggregate lies beneath the geomembrane layer underlying the structural slab in plan locations as shown on Attachment A.

Field Observations

The GMCS restoration work was performed in two phases, Phase 1 and Phase 2. On 25 November 2019, 3 and 4 December 2019, Langan was on-site to observe and document that Phase 1 of the restoration work, which included the repair of a 2" solid pipe, a ½" solid pipe, and the geomembrane, which were breached following the demolition of the equipment and subsequent cutting of the concrete slab. As described in the Methane Mitigation Plan by Geosyntec dated 16 March 2006, the GMCS at Building 48 consists of (1) a continuous geomembrane 'sandwich' layer by EPRO, (2) gas extraction piping consisting of 2" diameter perforated and solid wall PVC pipes, and (3) gas monitoring probes consisting of individual ½" diameter PVC pipe (grey in color) running from three discrete monitoring probes (installed beneath the structural slab and the gas barrier) to external, surface mounted, traffic rated vaults.

Langan also observed Phase 2 of the restoration work during 14 and 27 February 2020, which included the repair of a 2" solid pipe, a ½" grey-colored solid gas monitoring pipe, and the geomembrane which were breached during the demolition of the steam condensate receiver. Additional repairs were made to the geomembrane in the men's bathroom where the slab was cut to repair a sewer line break. Langan observed trench excavation and subsequent breaching of the GMCS at the saw cut areas shown on Figure 1. Our Field Observation Reports are provided as Attachment B.

Prior to our observation, the concrete slab at each location was saw cut to a full depth to expose the underlying soil, aggregate, GMCS piping. The soil and aggregate removed during construction of the tenant improvements was stockpiled on site and used as backfill once installation of the piping and floor drains was complete. The trenches were backfilled and compacted to form a stable subgrade for the geomembrane installation and patching of the building slab.

Phase 2 of the subsurface work occurred following the GMCS restoration work completed on 4 December 2019. The concrete slab at each location (Field Daily dated 14 February 2020 in Attachment B) was saw cut to a full depth to expose the underlying soil and aggregate, resulting in the inadvertent cutting of a 2" PVC extraction pipe and a ½" grey-colored solid gas monitoring pipe. On 14 February 2020, Langan was on-site to inspect and document the pipes that were cut. On 27 February 2020 Langan was on-site to observe and document the repair to the cut pipes and the repair to the breached geomembrane layer.

The GMCS integrity of the piping that was affected by the B48 improvements during each phase of work was restored so that the piping system remains the preferential pathway for methane below the building slab to be vented outside of the building via the gas extraction riser. Langan observed that the GMCS vent piping was restored using materials of like size, type, and quality as the original GMCS piping, and in order to ensure integrity, the restored pipe sections were joined using only mechanical couplings, without the use of VOC containing solvents or glues.

Per the Work Plan for this project, Langan observed that the geomembrane (Ecoline-S) was restored in accordance with the Work Plan and manufacturer's standard procedures with current underslab EPRO products: e.base 205, e.spray, and e.shield 205. Consistent with the manufacturer's quality assurance requirements, Langan observed a smoke test and coupon sampling in each of the trenches where the geomembrane work occurred following the restoration of the geomembrane. Each section of geomembrane was thoroughly smoke tested to ensure the proper installation. Each section tested passed the smoke test. In Langan's opinion, the GMCS restoration activities were performed in accordance with the Methane Mitigation System Repair Plan, dated 23 July 2019 and the GMCS has been restored satisfactorily to fully function as designed and continues to be protective of receptors. The GMCS restoration work was a planned activity and part of Genentech's tenant improvement work to construct a new media prep and glass wash facility on the ground floor of Genentech Building 48, and Langan certifies the proper completion of the work and operation of the GMCS. Accordingly, Langan does not believe that the conditions in the subsurface relative to the potential presence of methane have changed as a result of completing the Work Plan so as to re-initiate methane monitoring with the system per criteria established by DTSC when it suspended methane monitoring in March 2012.

If you have any questions, please do not hesitate to call.

Sincerely yours,
Langan Engineering & Environmental Services, Inc.

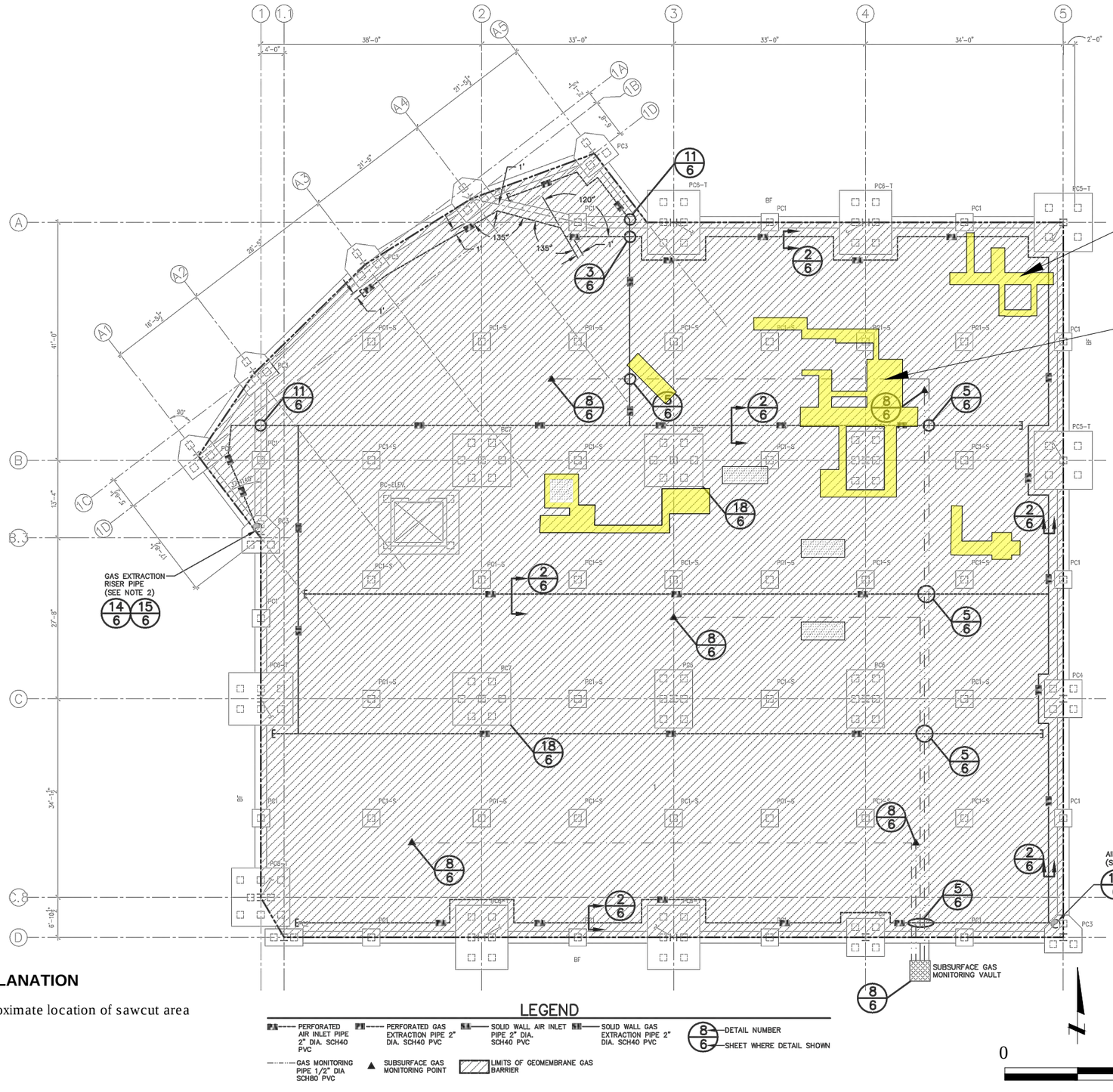
Mukta Patil, PE
Senior Project Engineer

Jeffrey F. Ludlow, PG
Principal/Vice President

Attachments: Figure 1 – Gas Monitoring and Control System Restoration Site Plan
Figure 2 – Gas Monitoring and Control System Typical Geomembrane Restoration
Figure 3 – Gas Monitoring and Control System Typical Vent Pipe Restoration
Attachment A – GMCS Plan and Details prepared by Geosyntec
Attachment B – Field Observations and Reports

731677306.07 MP_Revised (Final) Gas Monitoring Control System Restoration Completion Letter_Genentech Bldg 48_082620

FIGURES



SEE FIGURE 2 FOR TYPICAL GMCS GEOMEMBRANE RESTORATION DETAIL

SEE FIGURE 3 FOR TYPICAL GMCS PIPE RESTORATION DETAIL

EXPLANATION

Approximate location of sawcut area

LEGEND

PA — PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC

PE — PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC

SA — SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC

SE — SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC

8/6 — DETAIL NUMBER / SHEET WHERE DETAIL SHOWN

GAS MONITORING PIPE 1/2" DIA SCH80 PVC

▲ SUBSURFACE GAS MONITORING POINT

LIMITS OF GEOMEMBRANE GAS BARRIER

0 25 Feet

Approximate scale

Reference: "Building 48 Structural Foundation Plan" provided by Flad Architects on 7/10/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 07/15/19	Project No. 731677306	Figure 1

LANGAN

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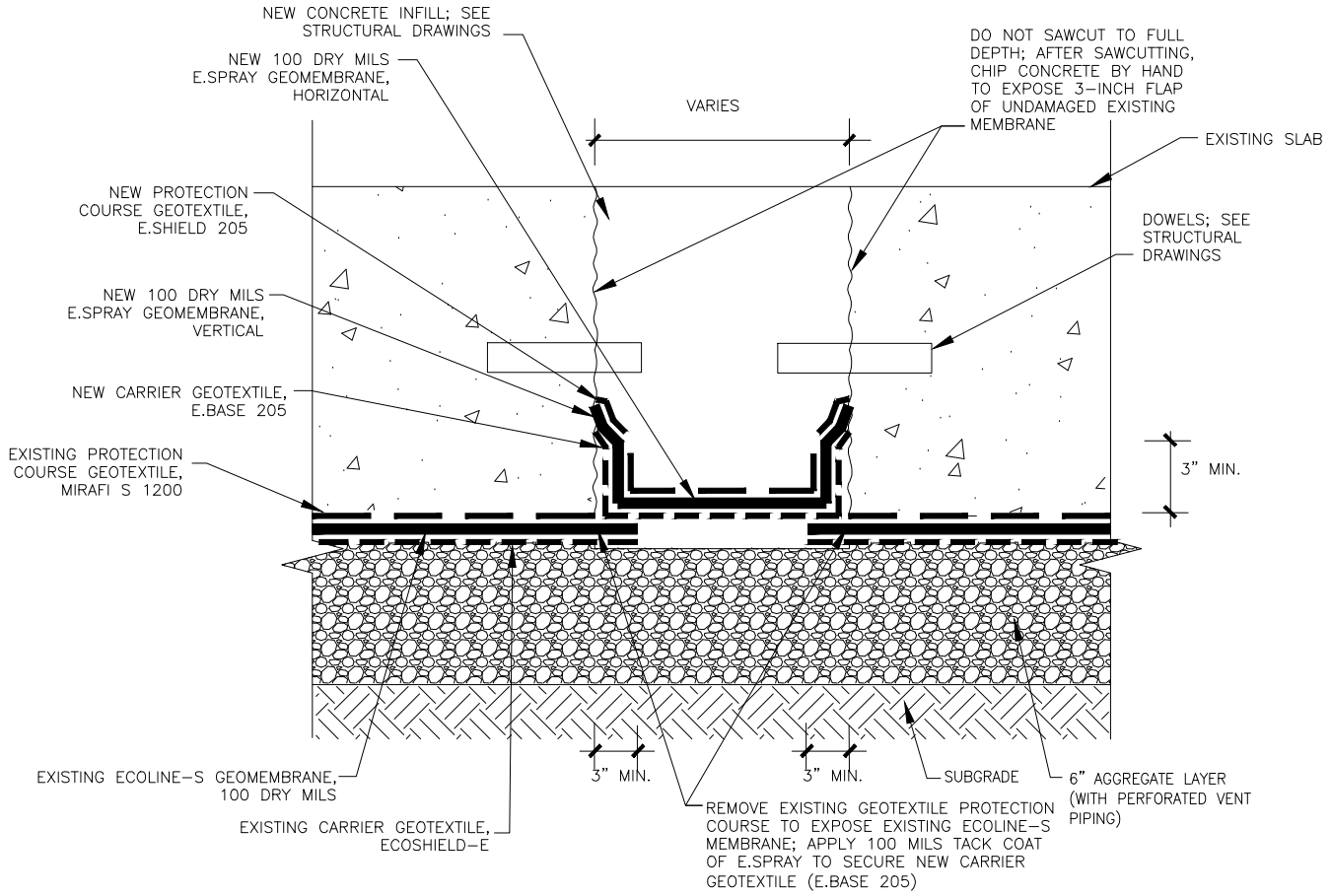


NOT TO SCALE

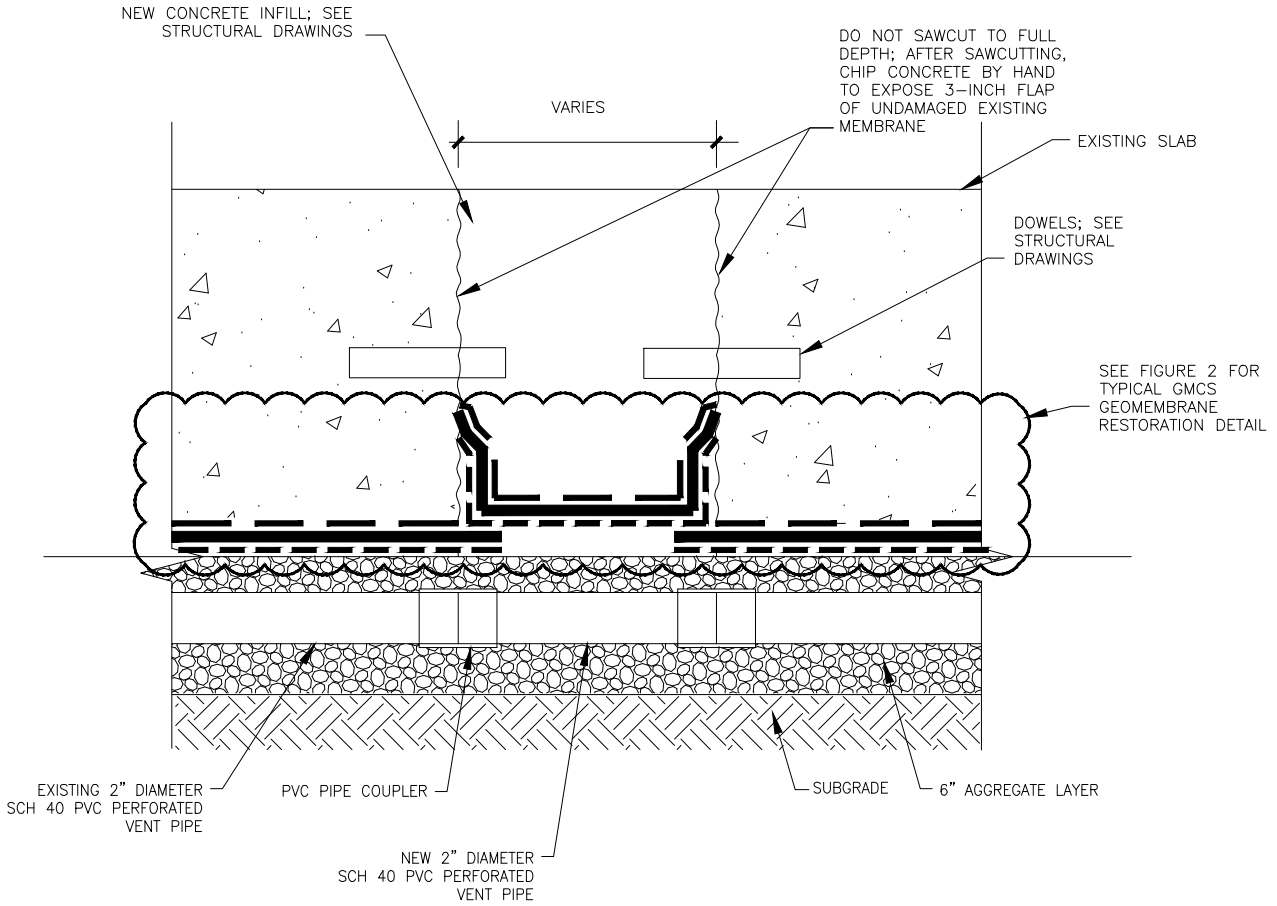
NOTE: THE EPRO PRODUCT E.SPRAY WAS FORMERLY KNOWN AS ECOLINE-S. THE GEOMEMBRANE SHALL BE RESTORED ACCORDING TO THE MANUFACTURER'S STANDARD PROCEDURES AND THE CURRENT UNDERSLAB EPRO PRODUCTS: E.BASE 205, E.SPRAY, AND E.SHIELD 205.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM
TYPICAL GEOMEMBRANE RESTORATION

Date 07/15/19	Project No. 731677306	Figure 2

LANGAN



NOT TO SCALE

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

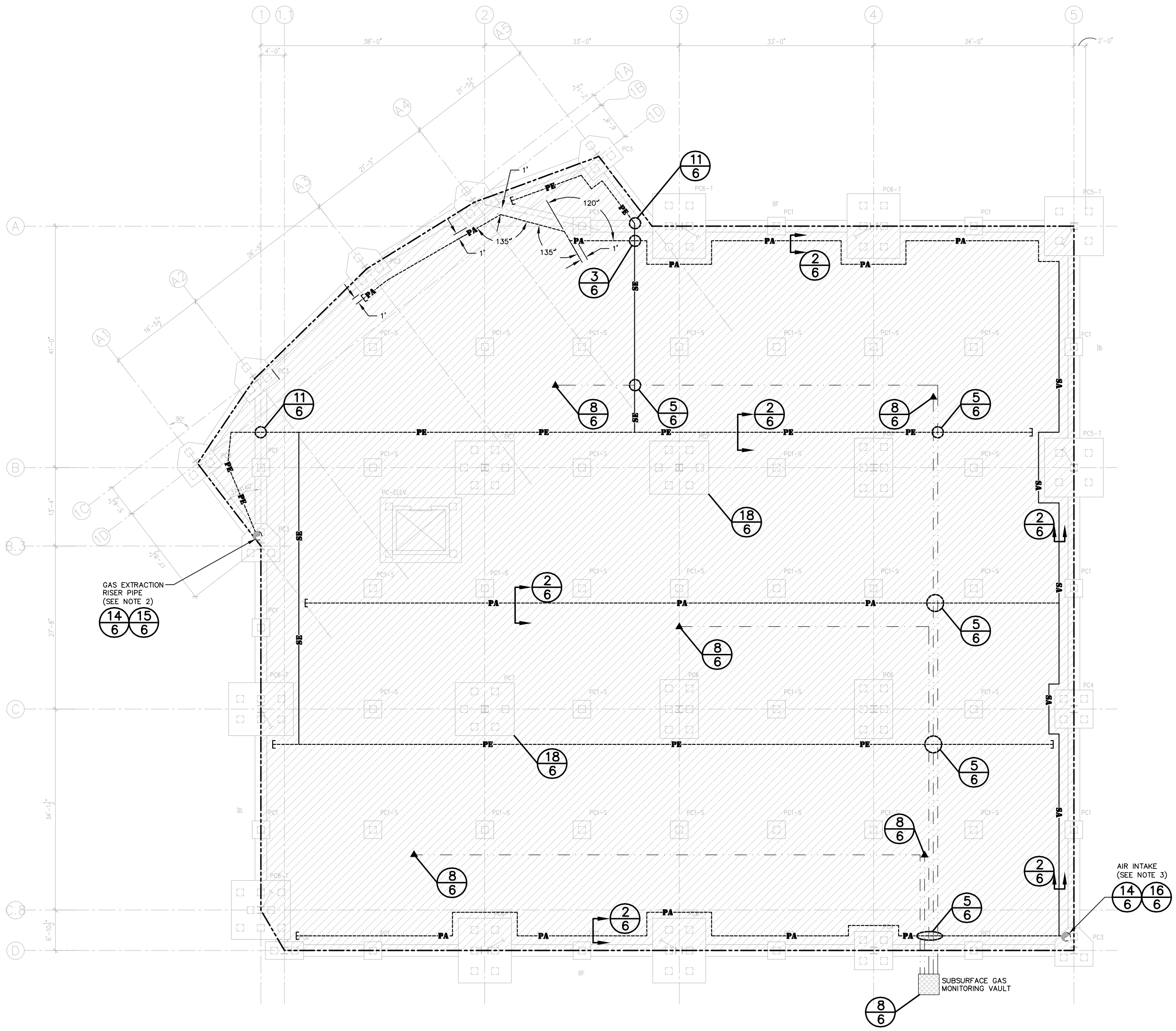
GAS MONITORING AND CONTROL SYSTEM
TYPICAL VENT PIPE RESTORATION

Date 07/15/19	Project No. 731677306	Figure 3

LANGAN

ATTACHMENT A

GMCS PLAN AND DETAILS PREPARED BY GEOSYNTEC



NOTES:

1. BUILDING FOUNDATION PLAN OBTAINED FROM DES ARCHITECTS & ENGINEERING.
2. GAS EXTRACTION VERTICAL RISER PIPE SHALL EXTEND A MINIMUM OF 2 FEET ABOVE ROOF LINE, CONTAIN A WIND DRIVEN ROTARY TURBINE VENTILATOR, AND BE PLACED A MINIMUM OF 10 FEET FROM HVAC INLETS OR BUILDING OPENINGS.
3. AIR INLET VERTICAL RISER SHALL BE INSTALLED A MINIMUM OF 10 FEET ABOVE GRADE OR HVAC INLETS AND OPENINGS.
4. UTILITIES WHICH PENETRATE THE BUILDING SLAB SHOULD BE CONSTRUCTED AS SHOWN ON DETAIL 19 SHEET 6. (19/6)
5. A SUBSURFACE TRENCH CUT OFF SHOULD BE CONSTRUCTED FOR UTILITIES ENTERING THE ENCLOSED PORTIONS OF THE BUILDING (I.E. AREAS WITH GEOMEMBRANE GAS BARRIER) AS SHOWN ON DETAIL 9 SHEET 6. (9/6)

LEGEND

- PA---- PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC
- PE---- PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
- SA—— SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC
- SE—— SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
- 8 — DETAIL NUMBER; 6 — SHEET WHERE DETAIL SHOWN
- —·—·— GAS MONITORING PIPE 1/2" DIA SCH80 PVC
- ▲ SUBSURFACE GAS MONITORING POINT
- LIMITS OF GEOMEMBRANE GAS BARRIER

SCALE IN FEET: 8 4 0 8 16

GeoSyntec Consultants
11305 Rancho Bernardo Rd. Suite 101
SAN DIEGO, CALIFORNIA 92127
TELEPHONE: (858) 674-6559

PROJECT: BRITANNIA EAST GRAND–PHASE II
SOUTH SAN FRANCISCO, CALIFORNIA

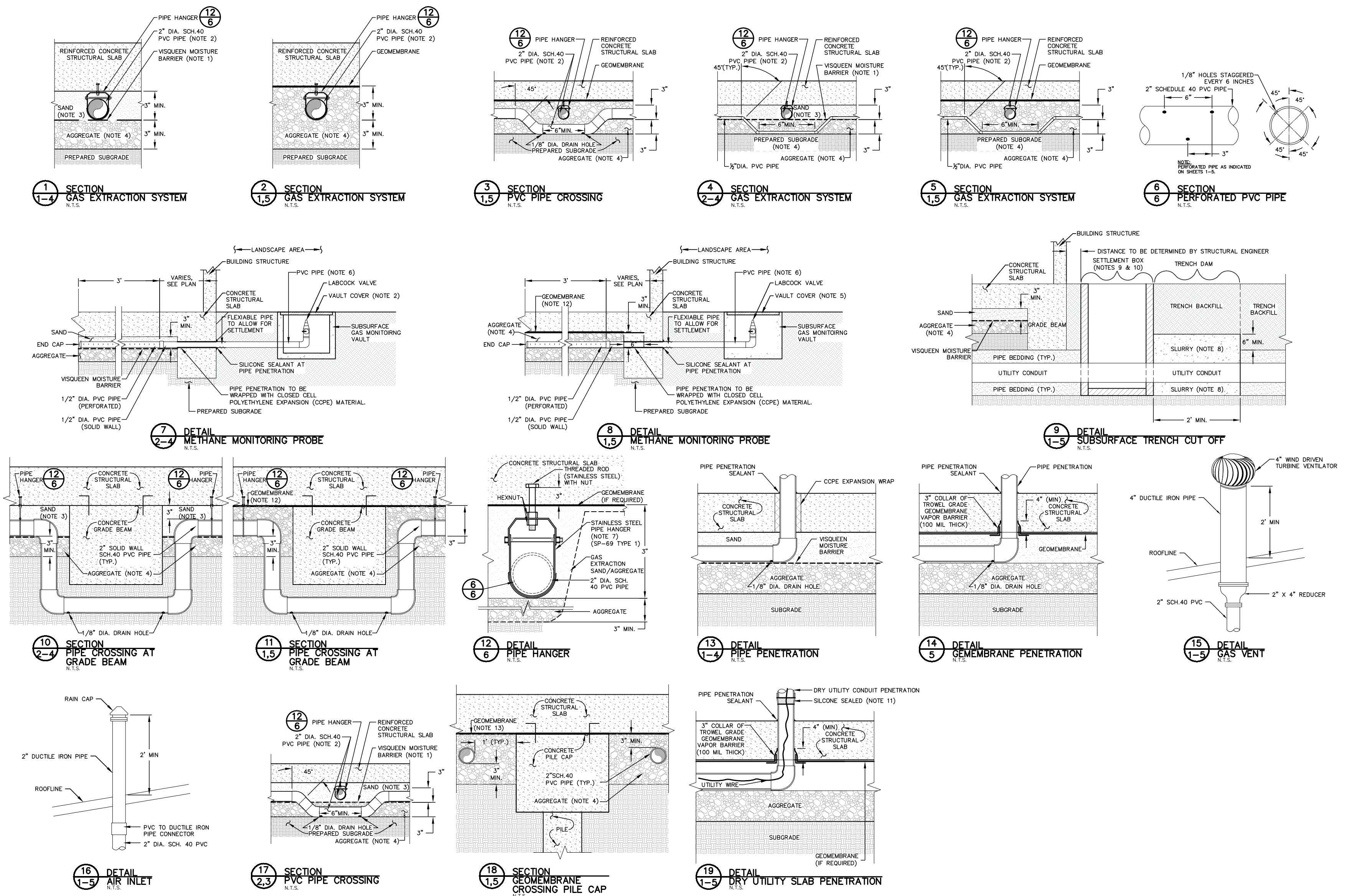
TITLE: BUILDING 9
GAS MONITORING SYSTEM LAYOUT PLAN

MARK	DATE	REVISION	BY	APPROVED

SEAL: REGISTERED PROFESSIONAL ENGINEER STEVEN M. FITZWILLIAM No.53231 Exp.6/30/07 CIVIL STATE OF CALIFORNIA

SEAL

DATE:	DECEMBER 2005	SCALE:	AS SHOWN
DESIGN BY:	S.F.	JOB NO.:	SC0347-01
DRAWN BY:	T.L.Z.	FILE NO:	
CHECKED BY:	G.T.C.	DOCUMENT NO:	
REVIEWED BY: (PROJ. MGR.)	G.T.C.	DRAWING NO:	5 OF 6
APPROVED BY: (PRINCIPAL)			



NOTES:

1. MOISTURE BARRIER TO BE INSTALLED FOR CONCRETE CURING PURPOSES IN ACCORDANCE WITH STRUCTURAL ENGINEERING DESIGN.
2. PIPE HANGERS MAY BE REQUIRED IF GEOTECHNICAL ENGINEER ANTICIPATES SETTLEMENT OF SOIL BENEATH STRUCTURAL SLAB.
3. SAND SHALL MEET THE REQUIREMENTS FOR PORTLAND CEMENT CONCRETE (SSPWC 200–1.5.5), OR MEDIUM OR FINE SCREENINGS (SSPWC 200–1.2.1)
4. AGGREGATE SHALL MEET REQUIREMENTS SPECIFIED IN ASTM C33 FOR #8 AGGREGATE UNLESS OTHERWISE NOTED IN THE GEOTECHNICAL INVESTIGATION REPORT FOR THE PROJECT.
5. VAULT SHALL HAVE A WATER–TIGHT, TRAFFIC RATED COVER.
6. PVC PIPE AND FITTINGS SHALL BE JOINED BY THREADED CONNECTIONS AND/OR STAINLESS STEEL, SELF– TAPPING SCREWS WITHIN THE GAS MONITORING VAULT. NO SOLVENTS WILL BE ALLOWED.
7. PIPE HANGER SPACING, 8 FEET ALONG SOLID WALL PIPE AND 10 FEET ALONG PERFORATED PIPE.
8. SLURRY SHALL CONSIST OF 2–SACK CEMENT SLURRY WITH 2 PERCENT BENTONITE.
9. SETTLEMENT BOX PER STRUCTURAL ENGINEER'S RECOMMENDATION.
10. IF NO SETTLEMENT BOX IS REQUIRED PER STRUCTURAL ENGINEER'S RECOMMENDATIONS, THEN TRENCH DAM WILL ABUT BUILDING GRADE BEAM.
11. DRY UTILITIES PENETRATING THE STRUCTURAL SLAB SHALL HAVE THE ANNULUS OF THE CONDUIT SEALED USING 1" THICK DOW SILICONE SEALANT. SEALANT LOCATION TO BE AT FIRST CONDUIT JOINT WITHIN STRUCTURE.
12. GEOMEMBRANE SHALL EXTEND A MINIMUM OF 6 INCHES ONTO PERIMETER GRADE BEAMS AT LIMIT OF GEOMEMBRANE.
13. GEOMEMBRANE SHALL EXTEND TO LIMITS SHOWN ON SHEETS 1 AND 5 AT PILE CAPS ALONG LIMIT OF GEOMEMBRANE.

12 / 6 — DETAIL NUMBER / SHEET(S) WHERE DETAIL APPLIES

GEOSYNTEC CONSULTANTS
10875 Rancho Bernardo Rd. Suite 200
SAN DIEGO, CALIFORNIA 92127
TELEPHONE: (858) 674–6559

PROJECT: BRITANNIA EAST GRAND–PHASE II
SOUTH SAN FRANCISCO, CALIFORNIA

TITLE: **GAS EXTRACTION SYSTEM DETAILS**

MARK	DATE	REVISION	BY	APPROVED

SEAL: REGISTERED PROFESSIONAL ENGINEER STEVEN M. FITZWILLIAM No.53231 Exp.6/30/07 CIVIL STATE OF CALIFORNIA

SEAL

DATE:	DECEMBER 2005	SCALE:	AS SHOWN
DESIGN BY:	S.F.	JOB NO.:	SC0347–01
DRAWN BY:	T.L.Z.	FILE NO:	
CHECKED BY:	G.T.C.	DOCUMENT NO:	
REVIEWED BY: (PROJ. MGR.)	G.T.C.	DRAWING NO:	6 OF 6
APPROVED BY: (PRINCIPAL)			

ATTACHMENT B

FIELD OBSERVATIONS AND REPORTS

LANGAN

FIELD REPORT NO. 1

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	11/25/2019
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	1400 – 1500 (plus reporting)	Weather:	Overcast, ~50°F
Reviewed by:	*Mukta Patil*	Date:	12/05/2019

1400 Daniel Wood (Langan) arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for Gas Monitoring and Control System (GMCS) restoration oversight.

1410 Daniel Wood (Langan) meets Jesse (ACT, membrane restoration subcontractor) who is spraying EPRO vapor barrier in the trench closest to the loading dock entrance. Smoke testing will commence after the repair.

1420 Initial restoration complete. Coupon cut and collected. Smoke testing underway.

1440 Coupon thickness 110 mil. Smoke testing passed.

1500 Daniel Wood (Langan) departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 11/25/2019

Photo 1: North Tower GMCS repair work underway near loading dock door (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 11/25/2019

Photo 2: Progress of patching shown in Photo 1 (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

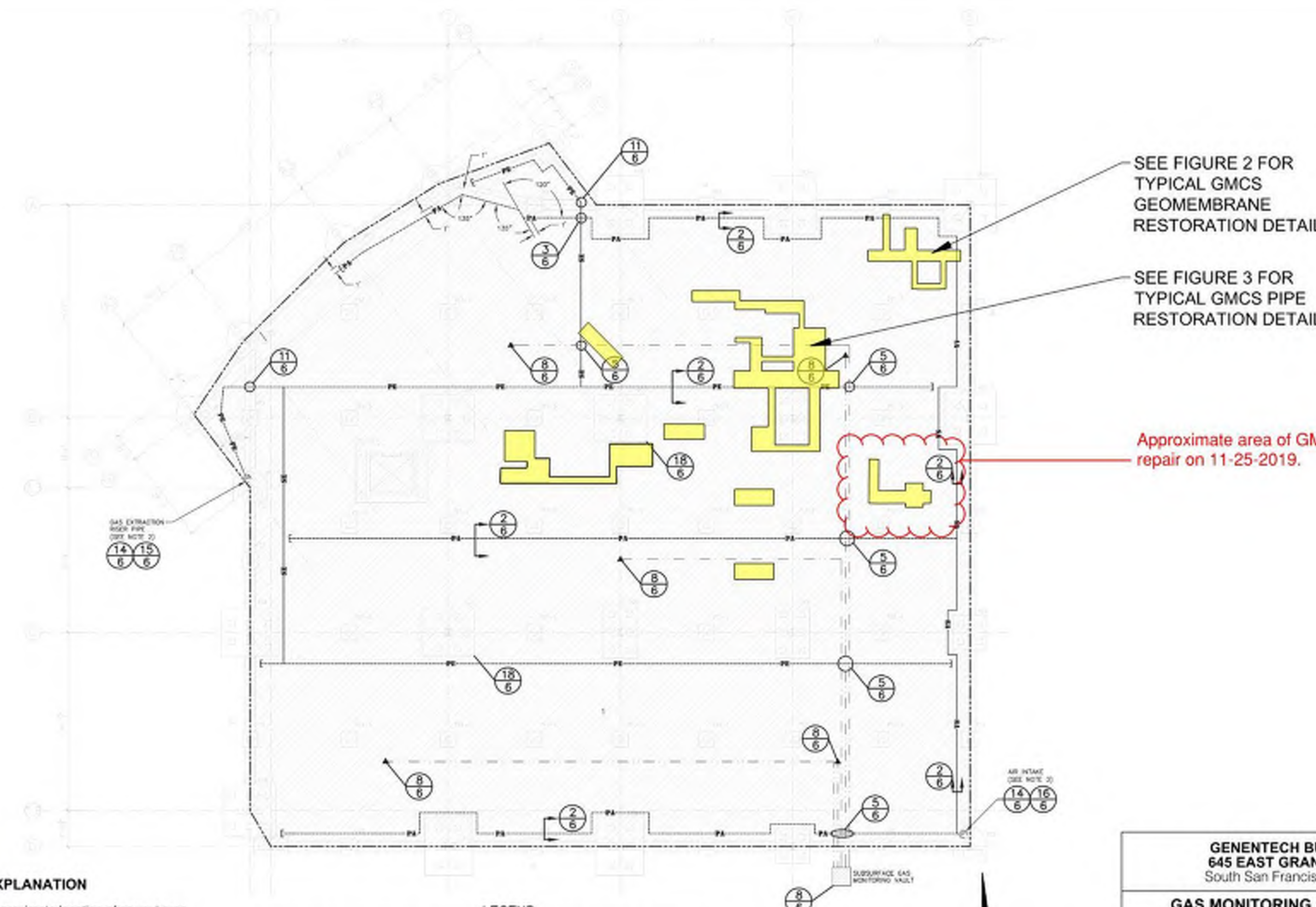
Project No: 731677306
Date: 11/25/2019

Photo 3: Progress of patching shown in Photo 1 (facing northeast).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 11/25/2019

Photo 4: Repair of area cut for smoke testing (facing north).



EXPLANATION

Approximate location of sawcut area

LEGEND

PA — PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC
PE — PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
SA — SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC
SE — SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC
DETAIL NUMBER / SHEET WHERE DETAIL SHOWN
GAS MONITORING PIPE 1/2" DIA SCH80 PVC
▲ SUBSURFACE GAS MONITORING POINT
LIMITS OF GEOMEMBRANE GAS BARRIER

0 — 25 Feet

Approximate scale

Reference: "Building 48 Structural Foundation Plan" provided by Flad Architects on 7/10/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 07/15/19	Project No. 731677306	Figure 1

LANGAN

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LANGAN

FIELD REPORT NO. 2

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	12/03/2019
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	0700 – 0800 & 1000 - 1015 (plus reporting)	Weather:	Overcast, ~50°F
Reviewed by:	*Mukta Patil*	Date:	12/05/2019

0700 Daniel Wood (Langan) arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for Gas Monitoring and Control System (GMCS) restoration oversight.

0705 Call Anthony Garcia (GCI) in order to meet.

0740 Observation of vapor barrier restoration work progress along with Anthony Garcia (GCI) and Frank. The 2" solid gas extraction pipe is repaired. The ½" solid gas monitoring pipe is not yet repaired. Daniel Wood to return at 10am.

0800 Daniel Wood departs the site.

1000 Daniel Wood returns to B48 to inspect ½" solid gas monitoring pipe repair. Pipe is repaired. EPRO vapor barrier membrane application to begin tomorrow (12-04-2019)

1015 Daniel Wood departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/03/2019

Photo 1: Preparation for EPRO application to north western most repair section (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/03/2019

Photo 2: Preparation for EPRO application on north eastern-most repair section (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

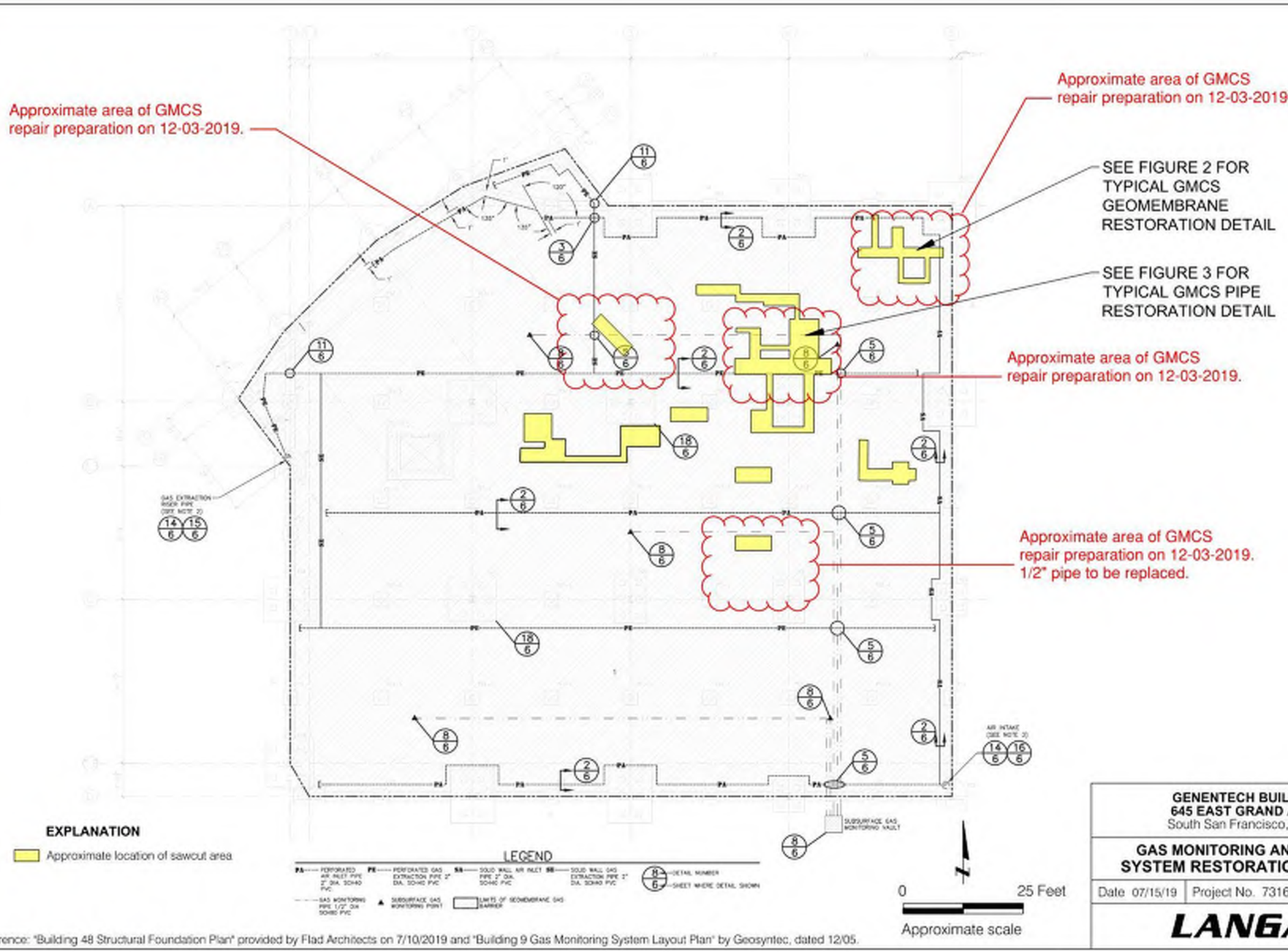
Project No: 731677306
Date: 12/03/2019

Photo 3: Progress of ½" solid gas monitoring pipe replacement (facing south).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/03/2019

Photo 4: Preparation for GMCS repair to center trenching area (facing north).



Reference: "Building 48 Structural Foundation Plan" provided by Flad Architects on 7/10/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	12/04/2019
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	1605 – 1740 (plus reporting)	Weather:	Overcast, ~50°F
Reviewed by:	*Mukta Patil*	Date:	12/05/2019

1605 Daniel Wood (Langan) arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for Gas Monitoring and Control System (GMCS) restoration oversight.

1615 Smoke testing commences. Coupons collected.

1730 Smoke testing passed in each trench. Coupon thicknesses in four areas checked: 105 mil, 110 mils, 120 mils, and 105 mils.

1740 Daniel Wood departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/04/2019

Photo 1: Post vapor barrier application to north western most repair section (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/04/2019

Photo 2: EPRO applied to eastern-most section of GMCS repair (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/04/2019

Photo 3: EPRO applied to center-most section of GMCS repair area (facing south).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 12/04/2019

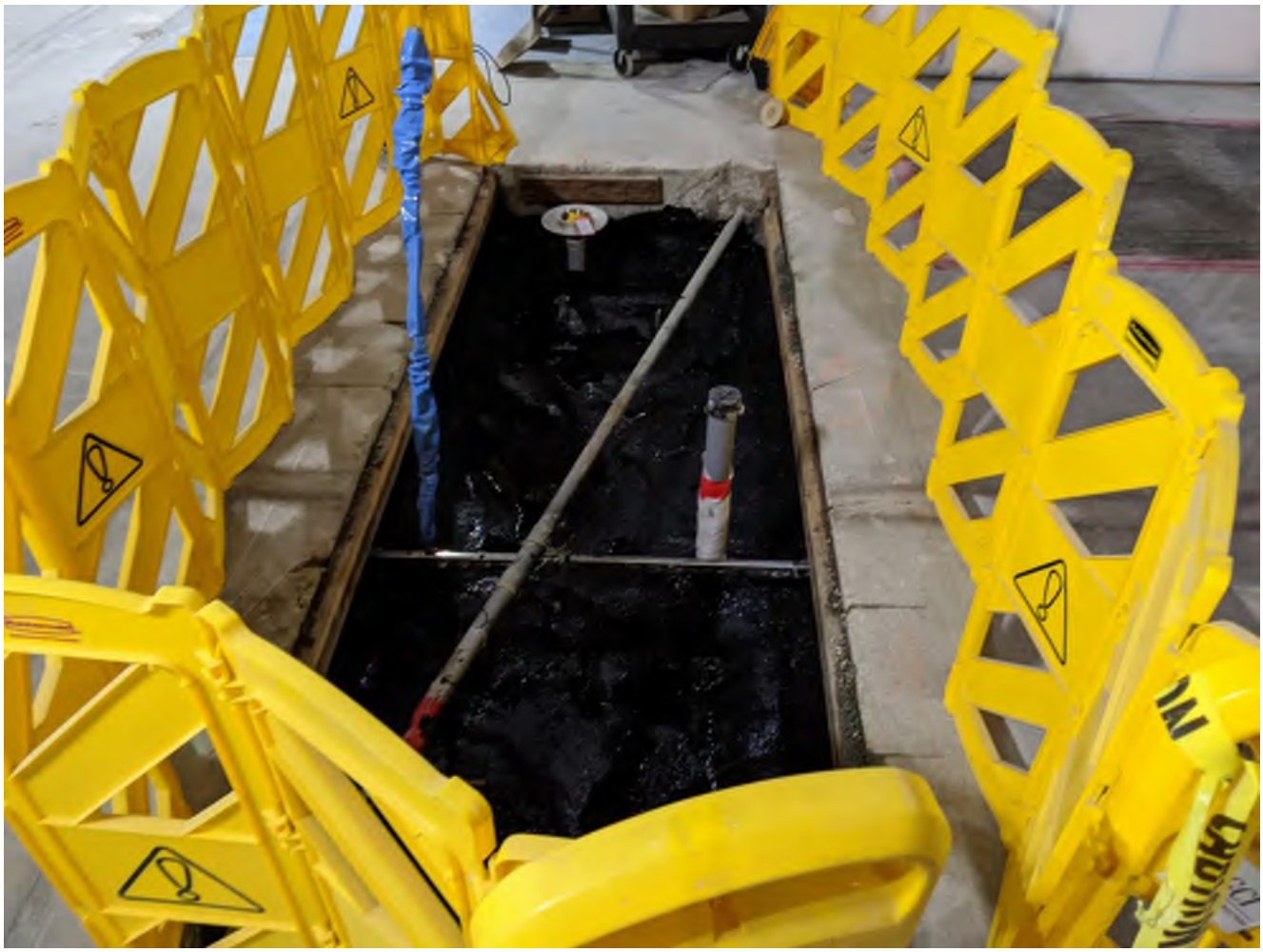


Photo 4: EPRO applied to GMCS repair where ½" gas monitoring pipe was replaced (facing west).

Approximate area of GMCS repair on 12-04-2019.

Approximate area of GMCS repair on 12-04-2019.

SEE FIGURE 2 FOR TYPICAL GMCS GEOMEMBRANE RESTORATION DETAIL

SEE FIGURE 3 FOR TYPICAL GMCS PIPE RESTORATION DETAIL

Approximate area of GMCS repair on 12-04-2019.

Approximate area of GMCS repair on 12-04-2019. 1/2" gas monitoring pipe replaced in southern trench.

GAS EXTRACTION RISER PIPE (SEE NOTE 2)

AIR INTAKE (SEE NOTE 2)

SUBSURFACE GAS MONITORING VAULT

EXPLANATION

Approximate location of sawcut area

LEGEND

PA — PERFORATED AIR INLET PIPE 2" DIA. SCH40 PVC

PE — PERFORATED GAS EXTRACTION PIPE 2" DIA. SCH40 PVC

SA — SOLID WALL AIR INLET PIPE 2" DIA. SCH40 PVC

SE — SOLID WALL GAS EXTRACTION PIPE 2" DIA. SCH40 PVC

8/6 — DETAIL NUMBER / SHEET WHERE DETAIL SHOWN

GAS MONITORING PIPE 1/2" DIA SCH80 PVC

SUBSURFACE GAS MONITORING POINT

LIMITS OF GEOMEMBRANE GAS BARRIER

0 25 Feet

Approximate scale

Reference: "Building 48 Structural Foundation Plan" provided by Flad Architects on 7/10/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 07/15/19	Project No. 731677306	Figure 1

LANGAN

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LANGAN

FIELD REPORT NO. 4

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	2/14/2020
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	1000 – 1100 (plus reporting)	Weather:	Overcast, ~60°F
Reviewed by:	*Mukta Patil*	Date:	03/27/2020

1030 Daniel Wood arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for observation of Phase 2 part of the Gas Monitoring and Control System (GMCS) restoration work.

1030 Daniel Wood observes concrete cut during Phase 2 Saw Cutting. Location of cutting is adjacent to loading dock entrance. White 2" PVC gas extraction pipe cut during saw cutting to be repaired the following week prior to GMCS repair.

1100 Daniel Wood departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/14/2020

Photo 1: Wide view of Saw Cutting Phase 2 area from the loading dock entrance (facing north).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/14/2020

Photo 2: View of Saw Cutting Phase 2 and cut 2" PVC gas extraction pipe (facing north).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

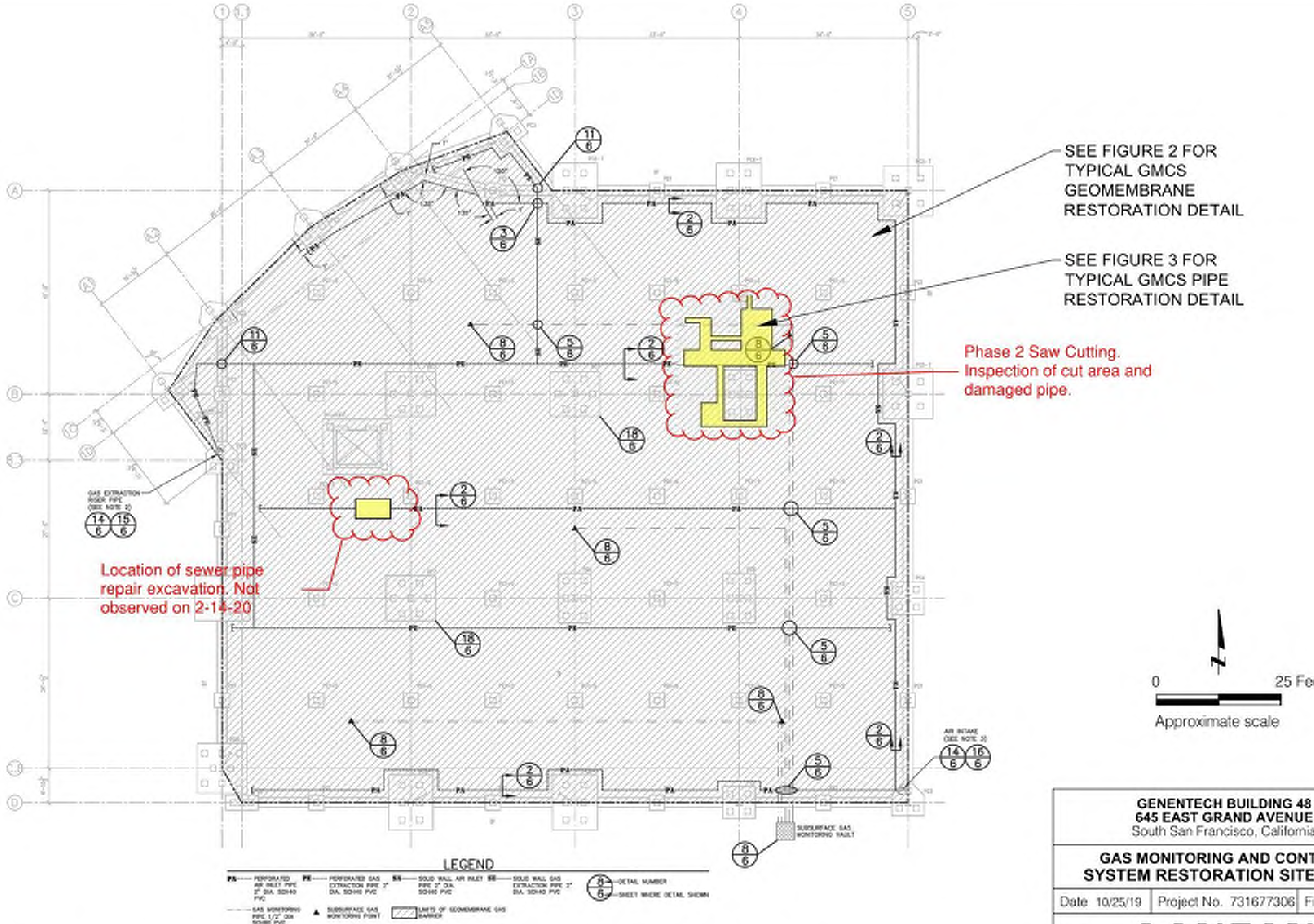
Project No: 731677306
Date: 2/14/2020

Photo 3: View of 2" PVC gas extraction pipe cut during Phase 2 Saw Cutting (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/14/2020

Photo 4: View of Phase 2 Saw Cutting area and cut 2" PVC gas extraction pipe (facing west).



GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 10/25/19	Project No. 731677306	Figure 1

LANGAN

Reference: "148-S02-028 PARTIAL FOUNDATION PLAN" provided by GCI on 10/24/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/05.

Project:	Genentech Building 48 GMCS Repair	Project No:	731677306
Subject:	**FIELD OBSERVATION DAILY REPORT**	Date:	2/27/2020
Field Engineer:	Daniel Wood	To:	Mukta Patil
Time:	1315 – 2035 (off site from 1400 – 1630)	Weather:	~60°F
Reviewed by:	*Mukta Patil*	Date:	03/27/2020

1315 Daniel Wood (Langan) arrives at 645 E. Grand Avenue, South San Francisco. Genentech Building 48 for Gas Monitoring and Control System (GMCS) restoration oversight.

Work Overview: During Phase 2 excavation within B48, a 2" PVC gas extraction line and a ½" solid gas monitoring pipe were cut and required repair. Following the repair of the cut pipes, the GMCS will be restored to the original condition. Langan on site to observe and document repaired pipes and observe smoke testing of the repaired membrane. Additionally, a small excavation in the men's bathroom to repair a failed sewer line will also require GMCS repair and subsequent smoke testing.

1340 Pipe repairs complete. The pipes were repaired to manufacturer specifications.

1400 Daniel Wood departs site while ACT prepares for GMCS repair.

1630 Daniel Wood returns to site. ACT is having a number of equipment issues. Primarily due to clogging of their equipment lines. Work progresses slowly.

1900 ACT finishes with patching of Phase 2 excavation area.
1910 Repair of GMCS cut in bathroom excavation begins.

1930 Smoke testing of GMCS patching in bathroom begins. Progress is slow due to clogging of vapor barrier equipment lines.

1955 Smoke testing of bathroom patching passed. Coupon thickness: 105 mils

2000 Smoke testing to begin on main Phase 2 excavation area.

2030 Smoke testing of main excavation area passed. Coupon thickness: 120 mils

2035 Daniel Wood departs the site.

Attachments: Site Plan

Initials DLW

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 1: Phase 2 excavation area within B48 (facing north).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 2: Fully repaired 2” PVC gas extraction pipe (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 3: Fully repaired ½" solid gas monitoring pipe (facing north).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 4: View of small excavation area within men's bathroom (facing west).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 5: View of GMCS repair over 2" PVC gas extraction pipe (facing east).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

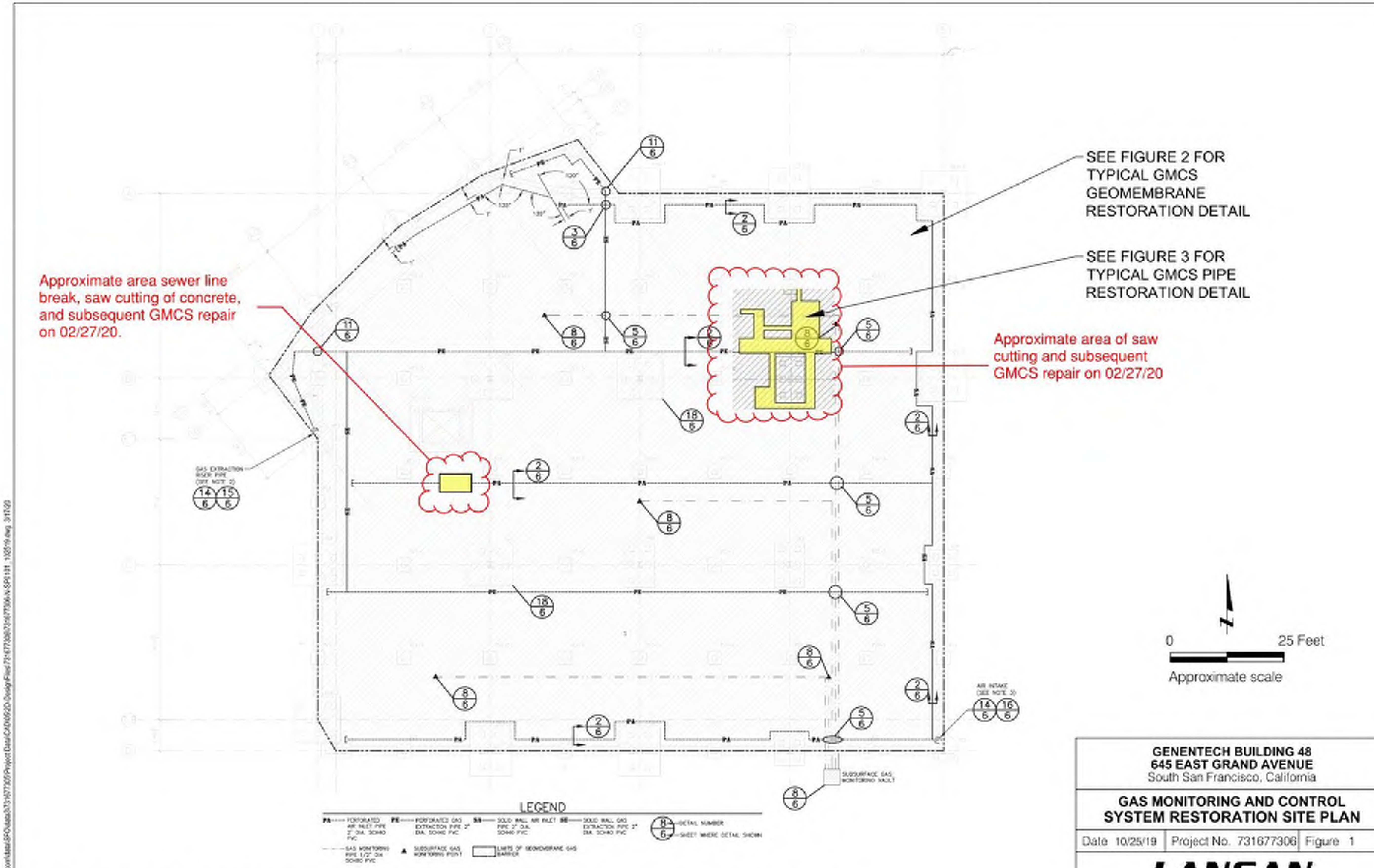
Project No: 731677306
Date: 2/27/2020

Photo 6: View of complete Phase 2 excavation GMCS repair (facing northwest).

Project: Genentech Building 48 GMCS Repair
Subject: **FIELD OBSERVATION DAILY REPORT**
Field Engineer: Daniel Wood

Project No: 731677306
Date: 2/27/2020

Photo 7: View of complete GMCS repair within men's bathroom (facing west)



GENENTECH BUILDING 48
645 EAST GRAND AVENUE
South San Francisco, California

GAS MONITORING AND CONTROL SYSTEM RESTORATION SITE PLAN

Date 10/25/19	Project No. 731677306	Figure 1

LANGAN

Reference: "148-S02-028 PARTIAL FOUNDATION PLAN" provided by GCI on 10/24/2019 and "Building 9 Gas Monitoring System Layout Plan" by Geosyntec, dated 12/06.